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ABSTRACT

This book is designed to teach accounting procedures and product specifications that are needed by the competent purchaser in order to make optimum purchasing decisions basic to a successful food service operation. It may be used by any level of food service personnel that is involved with any phase of the purchasing process. Preferably, the book should be used with the guidance and direction of a dietitian or instructor, but any interested employee working alone should benefit from the information. The self-instruction technique presents information in brief, easy steps. As new products are introduced, they are explained. Comprehension is tested by fill-in questions with answers. These topics are covered: the philosophy of purchasing; accounting procedures; beef; pork; lamb; fish and seafood; poultry; eggs; dairy products and alternatives; cheese; fresh fruits; canned, frozen, and dried fruits; fresh vegetables; canned, frozen, and dried vegetables; cereal products; spices, herbs, and flavorings; sweetening agents; beverages; and receiving and storage. (YLB)

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PURCHASING FOR FOOD SERVICE:

Self-Instruction

LYNNE NANNEN ROSS, PH.D., REGISTERED DIETITIAN

U.S. DEPARTMENT OF EDUCATION
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STANDARDIZED QUANTITY RECIPE FILE AND SUPPLEMENT
METRIC MEASUREMENT IN FOOD PREPARATION AND SERVICE

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PREFACE

IN THIS TIME of high costs, administrators are looking at every possible way to economize without adversely affecting food service quality and the welfare of those served. Purchasing techniques can be very useful in maximizing the resources of the dietary department. This book will assist you in learning accounting procedures and product specifications that will be needed by the competent purchaser in performing the duties necessary to provide optimum purchasing decisions basic to a successful food service operation. The foods included are those used in most food service departments. No attempt has been made to cover all foods available, particularly fats and oils and prepared baked products. The topics of cleaning supplies and disposables are too complex to be covered briefly and too lengthy to be included in this volume.

The self-instruction technique presents information in brief, easy steps. As new products are introduced, they are explained.

This book may be used by any level of food service personnel that is involved with a phase of the purchasing process. It is written to be understood by all. It would be desirable for the book to be used with the guidance and direction of a dietitian or instructor, but any interested employee working alone should benefit from the information. A certificate to recognize completion of the course is provided at the end of the book.

Purchasing for Food Service has been organized to simplify a rather complex subject. It is hoped that this information will serve as a tool for making improvements in the purchasing function of food service departments.

INSTRUCTIONS

THE FOLLOWING PAGES will lead you through an introduction to purchasing for food service. This is achieved by discussing the wide variety of products available to food service purchasers. The basic principles of purchasing and record keeping are designed to help make the job of purchasing easier.

To proceed with your self-instruction, follow these easy steps:

1. Place a sheet of paper over the page and slide it down until the top edge is on the row of asterisks.

2. Read each sentence carefully and thoroughly. Do not skip down to the blanks.

3. Write your response in the blank space provided for each word.

4. Move the paper down as you complete each item and check below the asterisks to see that your response was correct before proceeding to the next.

5. Do not look at the answer before you have attempted to make the response requested. The sheet of paper will help you focus your attention on the item being studied.

6. If your response is incorrect, reread the item to determine the cause for the misunderstanding.

7. If your response is correct, proceed to the next item.

1 THE PHILOSOPHY OF PURCHASING

The purchase of food and supplies for a food service department is a large responsibility. To get the best value for the money spent takes education, care, and planning. Parameters that need to be taken into consideration in making basic purchasing decisions are the type of institution, production needs, shelf life of food, general market and economic conditions, amount of storage (dry, refrigerated, and frozen), closeness to supply, and the availability of capital. To get the best value for the money takes ...., care, and planning.

****

education

An ordering system must be put into effect to ensure that the right quantity of food is on hand to correspond with the menu. The menu represents the type of food that the administration wants served in the facility. The food service may be a country club, a school, a college or university, an industrial cafeteria, a commercial restaurant, or a health care facility. An ordering system will ensure that the food is on hand to correspond with the ....

****

menu

The first step necessary to set up an ordering system is a complete menu, which includes portion sizes and detailed food item descriptions, for example, sugar cookie instead of merely cookie, or pineapple upside-down cake instead of cake. (See Ch. 2, Forms B and C.) The menu may be written for each individual day and used only once, or it may be written in cycles of three, four, or five weeks depending on the policy of the facility. The first step necessary to set up an .... system is a complete menu.

****
ordering

The next task after assembling the menu is to prepare a list of items required to fulfill it. Recipes should be checked for ingredients. Another list should be kept for staples such as flour, sugar, spices, paper products, and cleaning supplies. Determine the amount of food and supplies needed to last from one delivery date until the next. This list should be checked against the inventory to determine the items and quantities needed. The next task after assembling the menu is to prepare a ....

****
list

Foods should be selected according to the intended use. If a higher quality is purchased than is required, unnecessary additional cost will result. To assist in avoiding this error, careful specifications should be prepared. Specifications are descriptions of items in as much detail as possible. They include the name of the product, size of the container or unit, condition of the product (whole, sliced, cut, diced, peeled), grade, and number of pieces. .... are descriptions of items in as much detail as possible.

****
specifications

The federal Food, Drug and Cosmetic Act requires that labels for any food passing from one state to another include the following information:

1. The name of the product and the variety or style, when applicable.
2. The name and address of the manufacturer, packer, or shipper.
3. An accurate statement of the quantity.
4. A list of the common or usual names of each ingredient when two or more foods go into an unstandardized product. The order of listing indi-

cates the relative amount of each food; the food present in the largest quantity comes first.

5. Enough facts to fully inform the purchaser concerning foods for special dietary purposes.
6. A statement of the use of artificial flavoring, artificial coloring, imitations, or chemical preservatives.
7. An indication and explanation of substandard quality or substandard fill of container. Such food must be wholesome, even though it does not measure up to prescribed minimums in a stated way.
8. The required information in an easy-to-find and easy-to-understand statement.

The federal Food, Drug and Cosmetic Act requires that .... for any food passing from one state to another include certain information.

****
labels

Price comparisons are important but should be combined with acceptability of product when making decisions about which brand to purchase. Quantities and prices of food products follow seasonal variations. They are best in quality and lowest in price at the peak of the growing season. Price may also be influenced by other factors such as promotional discounts, large quantities, co-op purchasing, discontinued items, night or off-hour deliveries, introductory offer for a new product, discount for cash payment, or lower quality product. .... comparisons are important, but acceptability must be included in the purchasing decision.

****
price

It is advisable to compare the products and prices of all acceptable vendors, being sure all products are of the same specifications. When holding a can cutting to taste and compare products, it is recommended that the government standards given earlier be used as guidelines. These take into account characteristics such as color, texture, flavor, maturity, absence of defects, and drained weight. When comparing products, be sure all are of the same ....

****
specifications

For cost comparison, entrees must include equal amounts of protein or the ingredients necessary to make them equal. The cost of convenience foods should be compared to the cost of ingredients and labor for preparing conventional items. Rising labor costs have done much to promote the use of convenience foods–dehydrated, freeze-dried, canned, and frozen. The purchasing decisions related to labor need to include factors such as cost of labor required for the two modes of preparation, availability of labor at the skill level required, and availability of enough employees to prepare the items on the menu. Other purchasing decisions must be related to the availability of storage space–both room-temperature storage for dehydrated and freeze-dried products and low-temperature storage for refrigerated and frozen products. Frequency of delivery may also be an influencing factor. The cost of convenience foods should be compared with the cost of .... and .... for preparing conventional items.

****
ingredients • labor

Appearance, another factor in acceptability, is indicated by uniformity of pieces in cans of fruits, vegetables, and soups; consistency in gravies and sauces; and color in fruits and vegetables. .... is another factor in acceptability.

****
appearance

Acceptability of a new item should be checked against that for other brands, recipes, or forms of the food by conducting a taste test or by checking the amount of plate waste on the day the new item is on the menu compared to the day the regular item is served. When testing a new item, purchase only a small amount until cost and acceptability have been checked. Acceptability may be checked by conducting a .... or by checking the amount of ....

****
taste test • plate waste

Formal buying is usually done in writing for large facilities. The potential suppliers are invited to bid; can cuttings and product comparisons are held before the contract or agreement is finalized. Open or informal buying negotiations are usually oral. The contract may be made in person or by telephone. Price comparisons can be made by using the price printouts received from each potential supplier. .... buying is usually done in writing; open or .... buying is usually oral.

****
formal • informal

Selected food items such as dairy products, bread and buns, or coffee may be supplied by the vendor, based on a previous agreement to keep up an established inventory. Management should be certain that the qualities and quantities invoiced have been received. Selected food items may be supplied by the vendor based on a previous ....

****
agreement

2 ACCOUNTING PROCEDURES

Efficient food service management is based on effective accounting procedures. Experience with food purchased in the past is a valuable resource to use in making decisions for future buying. Efficient management is based on effective .... procedures.

****

accounting

A budget is a projected plan for expenditures, based on a record of past expenses. (See Form A at the end of the chapter.) It is used as a measuring stick to evaluate current performance and as a guideline for future spending. The proposal for expenditures may be for whatever time period the facility chooses and may be grouped into the categories that seem most logical to those using the information. A budget is a .... for expenditures, based on a record of past expenses.

****

projected plan

A menu is a plan or record of food items to be prepared and served by the personnel of the food service department. (See Forms B and C.) The items may range from a very simple, single-selection menu offered once each day to a very elaborate, multiple-offering menu in a facility that is open 18 to 24 hours each day. The format used in each facility needs to be developed for and by that facility. A .... is a plan of food items to be served.

****

menu

A food inventory is an organized listing of all food on hand. It is used to determine amounts of food to order and as a check on the amount of food that should be stored. The inventory sheet may list specifications for each food item. (See Form D.) Items on an inventory should be grouped according to category and be in alphabetical order within each. It is usually convenient to have the storeroom arranged in the same manner. Shelves that are labeled will help ensure that items are always placed in the same location. If the cost per purchase unit and the cost per issue unit are kept on the inventory form, time spent in determining the value of the inventory can be greatly reduced. A food .... is an organized listing of all food on hand.

****

inventory

Purchase orders should be used to ensure the receipt of the items specified. A purchase order provides a written record of the exact amounts and specifications of the food items ordered and the prices that are expected on the invoice. Such a form provides a record for the salesperson receiving the order, the buyer placing the order, the receiving clerk checking in the order, and the accounting office person paying the invoice. A .... provides a written record of the food ordered.

****

purchase order

A price quotation sheet is used to compile price information about food items from several vendors. (See Form E.) It is often used for the purchase of meat items where the price varies from week to week and the savings realized by a few cents variation may make a large difference in expense. After the item and amount has been determined, quotations are requested from vendors. Each vendor's price is recorded in the appropriate column. Based on the quotations, a vendor is selected for each item needed. A

.... sheet is used to compile price information from vendors.

****

price quotation

A purchase record is a summary of the cost of all deliveries received in a specified period. (See Forms F and G.) In a large facility it may be totaled and transmitted daily, while in a small facility it may be kept for an entire month before summarizing. Some managers prefer to divide receipts by vendor; others choose to categorize by food classification. An example of each record form is shown. A .... is a summary of costs.

****

purchase record

A monthly meal census is a record of all meals served each day and is divided into appropriate categories according to the facility. (See Form H.) In a private club the categories may be members, guests, and employees. In a school food service the categories may be students, faculty, and employees. In a health care facility the divisions might be patients, employees, guests, and free meals. The record of meals served is necessary to calculate food, labor, and total cost per meal. A monthly .... is a record of all meals served.

****

meal census

Food costs and meal costs are calculated using the following formulas: $BI + P - EI = C$, where BI = beginning inventory, P = purchases, EI = ending inventory, and C = food cost. In a commercial operation food cost percentage is found by: $C \div S = C\%$, where C = food cost, S = sales, and $C\%$ = food cost percentage. In student feeding and health care facilities the cost per meal is found by: $C \div M = MC$, where C = food cost, M = meals served, and MC = cost per meal. If adjustments are made for employee meal allowances, sales of food for income, or free meals for public relations, these amounts need to be subtracted before calculations are made. .... and meal costs are summarized from information found on other forms.

****
food costs

The portion cost is found by dividing the total cost by the number of servings. (See Form I.) The cost of a serving of fruit or vegetables is found by dividing the cost of the can by the number of portions it provides. The cost of a recipe item is found by adding the cost of each ingredient and dividing the total by the number of portions it yields. To find the ...., divide the total cost by the number of servings.

****
portion cost

The monthly summary is a compilation of all the information obtained through preparing and summarizing all other food service forms. (See Form J.) Each summary provides useful information about the operation for that month when compared to the budget, and a collection of several summaries can show any trends that are developing in the operation. This may be the quickest and surest way of spotting management problems so that corrective action can be taken before the problem becomes too acute. The .... is a compilation of all the information about the food service.

****
monthly summary

FORM A

FOOD SERVICE DEPARTMENT BUDGET

19____

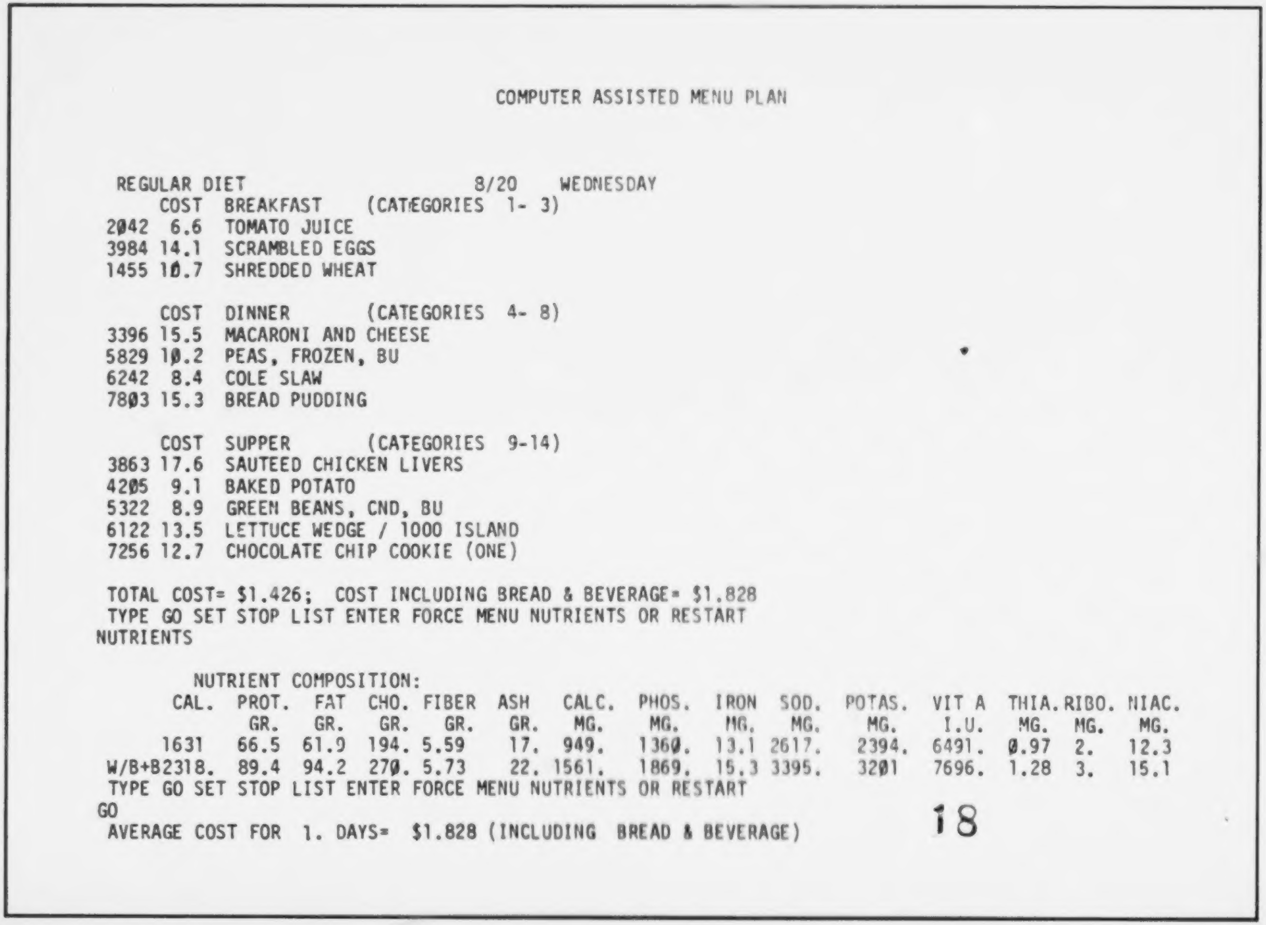
Item	Annual	Monthly
Salaries and wages	________	________
Food	________	________
Disposables	________	________
Cleaning supplies	________	________
Other expense	________	________
Education	________	________
TOTAL	________	________

FORM B

MENU

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Oatmeal	Cream of Wheat	Malt-o-Meal	Oatmeal	Cream of Wheat	Oatmeal	Malt-o-Meal
Scrambled egg	Fried egg	Soft-cooked egg	Scrambled egg	Poached egg	Soft-cooked egg	Scrambled egg
Sweet roll	Toast	Toast	Toast	Toast	Toast	Pancakes
Assorted juices	Assorted juices	Prunes	Grapefruit	Assorted juices	Assorted juices	Assorted juices
Roast beef	Chicken loaf	Pork chop	Tater-Tot casserole	Swiss steak	Meat loaf	Baked fish
Whipped potato	Cream-style corn	Parslied potato		Baked potato	Mashed potato	Hash browns
Peas and carrots	Green beans	Broccoli	Harvard beets	Buttered carrots	Mixed vegetables	Stewed tomatoes
Ginger ale salad	Relish tray	Aspic salad	Cranapple juice	Head lettuce	Relish plate	Coleslaw
Cheesecake	Peaches	Ice cream	Baked custard	Fruit cup	Purple plums	Brownie
	Ham-rice casserole	Cream of tomato soup	Escalloped chicken	Zucchini casserole	Corn chowder	Hot turkey sandwich
	Spinach	Assorted crackers	Buttered peas	Cottage cheese	Assorted crackers	French fries
	Pineapple and cottage cheese salad	Egg salad sandwich	Sunshine salad	Applesauce	Cheese plate	Squash
	Hot rolls	24-hour salad	Hot rolls	Ice cream	Waldorf salad	Cranberry jelly
	Frosted creams	Gingerbread	Chocolate pie	Sugar cookies	Caramel pudding	Pears

FORM C



```
                              COMPUTER ASSISTED MENU PLAN


 REGULAR DIET                          8/20    WEDNESDAY
     COST  BREAKFAST    (CATEGORIES  1- 3)
2042  6.6  TOMATO JUICE
3984 14.1  SCRAMBLED EGGS
1455 10.7  SHREDDED WHEAT

     COST  DINNER       (CATEGORIES  4- 8)
3396 15.5  MACARONI AND CHEESE
5829 10.2  PEAS, FROZEN, BU
6242  8.4  COLE SLAW
7803 15.3  BREAD PUDDING

     COST  SUPPER       (CATEGORIES  9-14)
3863 17.6  SAUTEED CHICKEN LIVERS
4205  9.1  BAKED POTATO
5322  8.9  GREEN BEANS, CND, BU
6122 13.5  LETTUCE WEDGE / 1000 ISLAND
7256 12.7  CHOCOLATE CHIP COOKIE (ONE)

TOTAL COST= $1.426;  COST INCLUDING BREAD & BEVERAGE= $1.828
TYPE GO SET STOP LIST ENTER FORCE MENU NUTRIENTS OR RESTART
NUTRIENTS

       NUTRIENT COMPOSITION:
      CAL.  PROT.  FAT  CHO. FIBER  ASH   CALC.  PHOS.  IRON  SOD.  POTAS.  VIT A  THIA.RIBO. NIAC.
             GR.   GR.   GR.   GR.   GR.   MG.    MG.    MG.   MG.    MG.    I.U.   MG.  MG.    MG.
     1631   66.5  61.9  194. 5.59   17.  949.   1360.  13.1 2617.   2394.  6491.  0.97  2.    12.3
 W/B+B2318.  89.4  94.2  270. 5.73   22. 1561.   1869.  15.3 3395.   3201   7696.  1.28  3.    15.1
 TYPE GO SET STOP LIST ENTER FORCE MENU NUTRIENTS OR RESTART
GO
 AVERAGE COST FOR  1. DAYS=  $1.828 (INCLUDING  BREAD & BEVERAGE)
```

FORM D

INVENTORY

Canned vegetables	Size of case	Cost per case	Cost per can	Size of serving	Servings per can	Cost per serving	Amount on hand	Value on hand
Asparagus spears (55–78)	6 #5			3 or 4	20			
Beans, cut green, Blue Lake, 3 sieve	6 #10			3 oz	33			
Beans, cut wax, 3 sieve	6 #10			3 oz	30			
Beans, kidney	6 #10			3 oz	35			
Beans, baked	12 #5			4 oz	27			
Beet, whole pickled	6 #10			3 oz	33			
Beets, sliced	6 #10			3 oz	33			
Beets, sliced pickled	6 #10			2 oz	50			
Beets, tiny whole (80–90)	6 #10			4 pc	25			
Carrots, sliced	6 #10			3 oz	35			
Carrots, whole (100)	6 #10			4 pc	25			
Corn, cream-style	6 #10			3 oz	35			
Corn, whole-kernel	6 #10			3 oz	35			
Onions, small whole (70–100)	6 #10			3 or 4	25			
Peas, June, 3 sieve	6 #10			3 oz	35			
Potatoes, white, tiny (160 or over)	6 #10			5 pc	32			
Potatoes, sweet, small (20–25)	12 #5			2 pc	12			
Sauerkraut	6 #10			3 oz	33			
Spinach, leaf	6 #10			3 oz	25			
Tomatoes, whole in puree	6 #10			4 oz	25			
Tomatoes, solid pack	6 #10			4 oz	25			
Tomatoes, puree, (1.05 specific gravity)	6 #10			2 oz	50			
Vegetables, mixed	6 #10			3 oz	35			
Yams, cut, vacuum pack	12 #5			2 or 3	12			
TOTAL								

Date:____________

FORM E

PRICE QUOTATION SHEET

Item	Specification	Prices					
		ABC Meats	Dixon's	G & H Supply	Metropolitan	Palmer	Wilson

FORM F

PURCHASE RECORD

	Supplier or vendor							
Date	ABC Meat	Dixon's	Hawkeye	Mr. Gus	Monarch	Prairie Farm	Reed's	Wilson

FORM G

PURCHASE RECORD

Date	Vendor	Total	Meat	Dairy	Groceries	Produce	Paper	Cleaning

FORM H

MEAL CENSUS

	Resident meals										Nonresident meals							
	General				Modified						Employee			Guests				
Day	B	L	D	Total	B	L	D	Total	Nourishment meal eq.*	Total	B	L	D	B	L	D	Total	total
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
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23																		
24																		
25																		
26																		
27																		
28																		
29																		
30																		
31																		
Total																		

*Divide substantial nourishment (sandwich and beverage) by 3 and divide beverages by 5 to determine nourishment meal equivalents.

FORM I

PORTION COST

Recipe item____________________

Number of servings____________________

Cost per serving____________________ Date__________

Ingredient	Amount	Unit price	Cost
Total			

Note: Multiply the amount of each ingredient times the unit price to determine the cost of each ingredient. Total these amounts to find the cost of the recipe. Divide this total cost by the number of servings to find the cost per serving.

FORM J

MONTHLY SUMMARY

Meals served			
Resident	____________		
Nonresident	____________		
Total		____________	
Man-minutes/meal		____________	
		____________	
Total food expense			____________
Average cost per meal		____________	
Total nonfood expense			____________
Average cost per meal		____________	
Total labor expense			____________
Average cost per meal		____________	
Total equipment expense			____________
Total operating expense			____________
Total expense			____________
Total revenue			____________
Net dietary department expense			____________

3 BEEF

In the United States, meat accounts for over 30% of the food budget. Knowledge of meat grades and cuts helps the buyer make an intelligent evaluation of the alternatives available, whether it is the selection of beef, pork, lamb, poultry, fish, eggs, or cheese. In the United States, meat accounts for over .... of the food budget.

****
30%

All animals are inspected for wholesomeness. The federal Meat Inspection Act requires all plants slaughtering meat or manufacturing meat products for interstate sale and shipment to operate under federal inspection. Federal inspection is carried out by the Meat Inspection Division of the Consumer and Marketing Service of the United States Department of Agriculture (USDA). The inspection for wholesomeness is done by veterinarians of the Meat Inspection Division or persons working under their supervision. Only meat that has first been inspected for wholesomeness may be graded. This inspection ensures that the meat has come from a healthy animal and that it was processed in a sanitary plant. Inspection for .... ensures that meat from a healthy animal was processed in a .... plant.

****
wholesomeness • sanitary

Two important factors to consider when buying beef are the quality grade and the cut. The quality of each cut of meat will vary according to the grade; the higher the USDA grade, the more tender, juicy, and flavorful the meat will be. Two important factors when buying beef are the quality .... and the ....

****
grade • cut

Participation in the USDA grading program is voluntary. Federal law does not require that a food processor or distributor use the grade standards, but the standards are widely used because they are a dependable guide to quality for the consumer. Meat grading is provided for a fee by the USDA Agricultural Marketing Service to packers or others who request it. Grading standards are a dependable guide to ....

****
quality

Beef varies in quality more than any other kind of meat. Beef quality is judged by USDA inspectors and registered on the meat by rolling a ribbonlike imprint along the length of the carcass and across both shoulders. The imprint is a purple shield-shaped mark containing the letters USDA and the grade name – Prime, Choice, Good, or other. When the carcass is divided into retail cuts, one or more of the grade marks will appear on each cut of meat. The grade mark is a purple ....-shaped imprint.

****
shield

The USDA grades are described as follows: Prime grade is the most tender, juicy, and flavorful. It is also the most expensive. Choice grade is high quality. It is moderately tender, juicy, and flavorful and the most widely available. It is acceptable quality at a reasonable price. Good grade is not as juicy and flavorful as the first two because of the lack of fat marbling in the muscle, but it may be fairly tender. Commercial grade is seldom seen at the retail level. It is mature beef and will not be as tender as the other three grades. The fat will tend to be yellow rather than white. The grade that is most tender, juicy, and flavorful is ....

****

Prime

Color of the meat is affected by advancing maturity. The older the animal, the deeper and darker the color. All meat is affected somewhat by oxidation and bacterial growth. Fresh veal is normally grayish pink, ranging from light to dark as the animal reaches maximum maturity. Fresh calf (carcasses that exceed maximum maturity for veal yet are too young to be classified as beef) has a normal color range of light grayish red to a moderate red. Fresh beef ranges from light grayish red to a very dark red. Colors vary from a light grayish pink in .... to a very dark red in mature ....

****

veal • beef

Shady or blackish red beef is believed to be the result of a reduced sugar content of the lean at the time of slaughter. Affected meat varies from slightly noticeable or two-toned to a black, gummy-textured meat. The off-colored meat does not affect the palatability. However, it does affect the acceptability; consequently, it is seldom sold. Shady or blackish red beef is believed to be the result of a reduced .... content of the lean at the time of slaughter.

****

sugar

The aroma of fresh raw beef is reminiscent of commercial lactic acid. The odor is stronger in maturer animals. Meat from mature uncastrated male animals is often said to have an ammonia odor. Fresh raw beef has an .... of commercial lactic acid.

****

aroma

Beef that has been stored unfrozen may be classified as having an aged odor. Prolonged storage may cause development of proteolytic or putrid odors from protein decomposition. Sour or tainted odors may occur from development of microbial growth, and rancid odors come from fat oxidation. Prolonged storage may cause various odors ranging from .... to sour or tainted to ....

****

aged • *rancid*

The best way for an individual operation to decide whether it will be better to purchase carcass beef, wholesale cuts, or preportioned meat is to compare prices and quality of available products. It is possible that a combination of the three will be the best decision. The best way to determine how to buy meat is to compare .... and .... of available products.

****

prices • *quality*

One of the most important requirements for carcass beef is careful cutting by an experienced butcher. If the cutting is to be done within the food service operation, special equipment and additional refrigeration will be needed. Sometimes the actual cost per pound for carcass beef is higher than it seems. As a general rule for making weight estimates, count on 25% waste, 25% ground beef and/or stew meat, 25% steaks, and 25% roasts. This is a rough guideline to assist in making cost comparisons. An important requirement for using carcass beef is careful cutting by an experienced ....

****

butcher

Yield grades are important to the buyer, for they identify the amount of usable meat on the carcass. Several beef carcasses all of the same quality grade can differ greatly in value because of differences in yield of usable meat. To identify these differences, the USDA has developed a system of five yield grades that are described by numbers 1 through 5: grade 5 identifies the lowest yield of trimmed cuts per carcass; grade 1 identifies the highest yield. The following table shows the percentage of trimmed cuts and waste for the five yield grades:

Yield grade	Trimmed cuts	Bone and shrinkage	Fat trim
US No. 1	82.0%	10.4%	7.6%
US No. 2	77.4	9.9	12.7
US No. 3	72.8	9.4	17.8
US No. 4	68.2	8.9	22.9
US No. 5	63.6	8.4	28.0

Yield grade identifies the amount of .... meat per carcass.

****

usable

For a more exact comparison of carcass beef to preportioned cuts, first determine the cost of the carcass, adjusted for yield. To do this, divide the price per pound by the yield grade percentage to find the actual cost of usable meat per pound. For example, a side of choice beef weighing 300 pounds before trimming, with a yield grade of 3, $1.60 per pound would have an actual cost per pound of $2.20 or a total cost of $480.

$$\frac{\text{Price/pound}}{\text{Yield grade \%}} = \text{actual cost/pound or } \frac{\$1.60}{.728} = \$2.20$$

To compare this cost with the cost of an equivalent amount of preportioned cuts, multiply the current cost of each item by the amount that would be available from a single carcass and total. To determine the better buy between carcass beef and preportioned cuts, compare the two total costs. The following table may be of assistance:

Preportioned cut	Approximate % of weight	Weight	Price/pound	Total value
Steaks				
Round	11	33	× ________	= ______
Club and T-bone	5	15	× ________	= ______
Sirloin	8	24	× ________	= ______
Roasts				
Boneless rump	3	9	× ________	= ______
Rib	6	18	× ________	= ______
Chuck blade	9	27	× ________	= ______
Chuck arm	6	18	× ________	= ______
Ground beef, etc.				
Ground beef	11	33	× ________	= ______
Stew meat	11	33	× ________	= ______
Boneless brisket	3	9	× ________	= ______
Waste	27	81	× –0–	= –0–
Total	100	300		= ______

To determine the better buy between carcass beef and preportioned cuts, compare the two .... costs.

****

total

Three advantages of using preportioned cuts are: (1) the amount purchased can be matched exactly to the amount needed according to the menu rather than adjusting the menu to match the available meat; (2) the buyer controls the quality, amount, and cost of the meat purchased; and (3) portions may be ordered to exact specifications so that each portion is the desired size. Extra portions may be kept on hand for changes in census, quick substitutions, or special orders. All these advantages result in greater control by the buyer. Availability and purchase of preportioned meat results in greater .... by the buyer.

****

control

Regardless of their quality grade, some cuts of beef are tenderer than others. Cuts from the less used muscles along the back will be tenderer than those from the active muscles The tenderest cuts make up only a small proportion of the beef carcass; they are in greatest demand and are higher priced than others. These are the roasts and steaks from the rib and loin sections of the animal. These cuts can be prepared by use of dry heat and can be cooked to the desired degree of doneness without sacrificing tenderness. Cuts from the less used muscles along the back will be .... than those from the active muscles.

****
tenderer

The less tender cuts make up the remainder of the beef carcass; they are slightly less desirable and less costly but are just as important as sources of nutrients. These are the roasts, steaks, stew meat, and ground beef from the shoulder, flank, and round. These cuts require tenderizing by heat and moisture during the cooking process, mechanically before cooking, or chemically by the addition of other ingredients during the cooking process. Names given to cuts of meat vary with the processor and the part of the country. The best guide for identifying beef (and veal) cuts is the standard terminology shown in the beef (and veal) charts at the end of the chapter. The less tender cuts of meat are slightly less desirable and less than .... the tenderer cuts.

****
costly

Ground beef packaged under federal or state inspection at the packing plant or retail warehouse must contain no more than 30% fat. There are no federal regulatory specifications for fat content of ground beef produced in the retail store, although some states and local agencies have their own controls. Ground beef packaged under federal or state regulations must not contain more than .... fat.

****
30%

Different kinds of ground beef vary based on the cuts from which they are made and the ratio of lean to fat, and this is reflected in the price. Types of ground beef available are labeled as ground beef, ground chuck, ground round, and ground sirloin. Ground beef ....

based on the cut and the .... of lean to fat, and this is reflected in the ....

****
varies • ratio • price

Ground beef is sometimes called hamburger, which is made by combining lean beef from lower grades with fat or trimmings from higher grades. Hamburger usually has the most fat and costs the least of all the varieties of ground beef. It may be a good buy for casseroles, meat loaf, spaghetti, and chili. Hamburger is made by combining .... from lower grades with fat and trimmings from .... grades of beef.

****
lean beef • higher

Ground chuck usually has less fat and more lean than ground beef, thus less shrinkage. This type of meat may be used for beefburgers, for hamburger patties, and for Salisbury steaks. Ground chuck has less .... than hamburger.

****
fat

Ground round is quite lean because of the close trimming of the fat. It is good for dieters because of the low fat content but tends to be less tender and juicy. Ground round is quite ....

****
lean

Ground sirloin or chopped sirloin is generally the most expensive variety of ground beef. The flavor is very good and is considered to be very much like ground chuck. The main difference is its higher cost. The main difference between ground sirloin and ground chuck is the higher ....

****
cost

Ground beef may have textured vegetable protein (TVP) added to it. This is done to decrease the cost without greatly decreasing the amount of available protein. However, it does change the amino acid ratio. Another advantage is that TVP absorbs moisture–both meat juices and fat. Since the flavor of meat is largely in the fat, this may produce a more flavorful product; however, for those attempting to reduce fat intake, this may be a disadvantage. Ground beef may have .... added to it.

****
textured vegetable protein

Fresh ground beef should be used within two days of delivery, or it should be frozen immediately. Ground beef delivered fresh should be used within .... days.

****
two

Frozen meat should be kept properly packaged and frozen at 0°F (–20°C) or below. The amount of available freezer space will influence your buying habits. Frozen meats should be examined at the time of delivery for signs of thawing. Do not accept frozen meat that is partially thawed unless it is to be used immediately. Look for clean, dry packaging. Frozen meat should be stored at .... or below.

****
0°F (–20°C)

Meat that is delivered fresh and then frozen should be packaged in the proper size for the intended use. The wrapping should be airtight. Ground beef may be stored two to three months with little loss of quality. Meat to be frozen should be wrapped in an .... package.

****
airtight

Meat darkens on the surface when it is frozen in airtight wrapping. The bright red color should return when it is exposed to air. Meat .... in airtight wrapping.

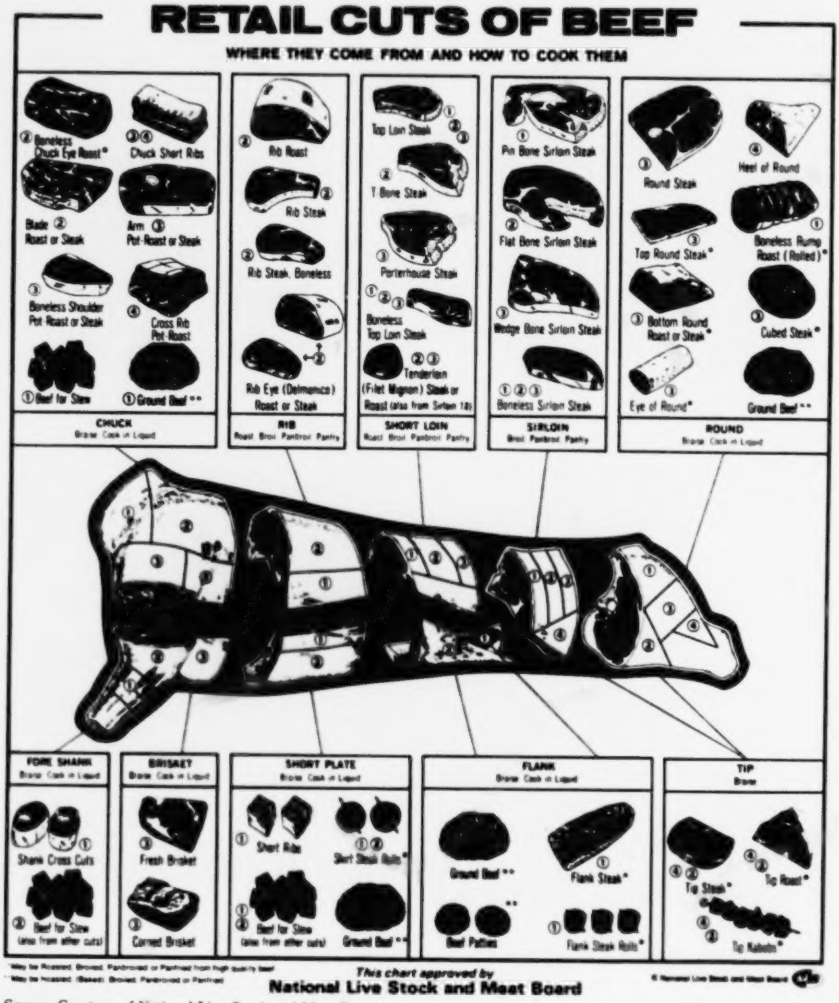
****
darkens

Individually quick frozen (IQF) meats are available in the portion size desired. This process allows the number of portions needed to be thawed and the rest to remain frozen. When preportioned meats are frozen in a solid block, the whole package must be thawed for use. To avoid waste, buy block-frozen meat only if the entire package is needed for the intended use. IQF meats are available in the .... size needed.

****
portion

Variety meats are the internal organs of meat animals that are used for food. They include liver, heart, kidney, tongue, tripe, sweetbreads, and brains. Occasionally oxtail is grouped with variety meats. Brains, sweetbreads, and tripe are colorless and very delicate in flavor. The others are both colorful and flavorful as well as nutritious. Variety meats are the internal .... of meat animals that are used for food.

****
organs


RETAIL CUTS OF BEEF
WHERE THEY COME FROM AND HOW TO COOK THEM
② Boneless Chuck Eye Roast*
③④ Chuck Short Ribs
Blade ② Roast or Steak
Arm ③ Pot-Roast or Steak
③ Boneless Shoulder Pot-Roast or Steak
④ Cross Rib Pot-Roast
① Beef for Stew
① Ground Beef**
CHUCK
Braise, Cook in Liquid
② Rib Roast
② Rib Steak
② Rib Steak, Boneless
② Rib Eye (Delmonico) Roast or Steak
RIB
Roast, Broil, Panbroil, Panfry
①②③ Top Loin Steak
② T-Bone Steak
③ Porterhouse Steak
①②③ Boneless Top Loin Steak
②③ Tenderloin (Filet Mignon) Steak or Roast (also from Sirloin 1ß)
SHORT LOIN
Roast, Broil, Panbroil, Panfry
① Pin Bone Sirloin Steak
② Flat Bone Sirloin Steak
③ Wedge Bone Sirloin Steak
①②③ Boneless Sirloin Steak
SIRLOIN
Broil, Panbroil, Panfry
③ Round Steak
④ Heel of Round
③ Top Round Steak*
① Boneless Rump Roast (Rolled)*
③ Bottom Round Roast or Steak*
③ Cubed Steak*
③ Eye of Round*
Ground Beef**
ROUND
Braise, Cook in Liquid
FORE SHANK
Braise, Cook in Liquid
① Shank Cross Cuts
② Beef for Stew (also from other cuts)
BRISKET
Braise, Cook in Liquid
③ Fresh Brisket
③ Corned Brisket
SHORT PLATE
Braise, Cook in Liquid
① Short Ribs
①② Skirt Steak Rolls*
①④ Beef for Stew (also from other cuts)
Ground Beef**
FLANK
Braise, Cook in Liquid
Ground Beef**
① Flank Steak*
Beef Patties**
① Flank Steak Rolls*
TIP
Braise
④② Tip Steak*
④② Tip Roast*
④② Tip Kabobs*
*May be Roasted, Broiled, Panbroiled or Panfried from high quality beef
**May be Roasted (Baked), Broiled, Panbroiled or Panfried
This chart approved by
National Live Stock and Meat Board
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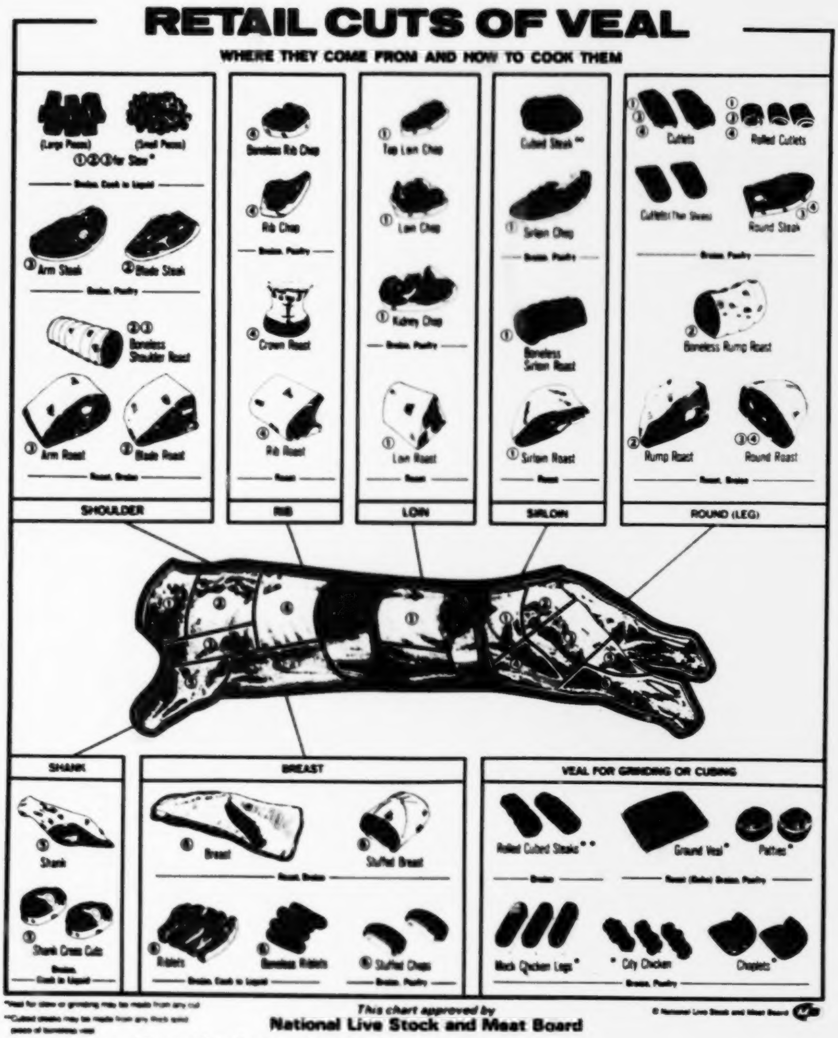
Source: Courtesy of National Live Stock and Meat Board.

BEEF 31


RETAIL CUTS OF VEAL
WHERE THEY COME FROM AND HOW TO COOK THEM
(Large Pieces)
(Small Pieces)
①②③ for Stew*
Braise, Cook in Liquid
③ Arm Steak
② Blade Steak
Braise, Panfry
②③ Boneless Shoulder Roast
③ Arm Roast
② Blade Roast
Roast, Braise
SHOULDER
④ Boneless Rib Chop
④ Rib Chop
Braise, Panfry
④ Crown Roast
④ Rib Roast
Roast
RIB
① Top Loin Chop
① Loin Chop
① Kidney Chop
Braise, Panfry
① Loin Roast
Roast
LOIN
Cubed Steak**
① Sirloin Chop
Braise, Panfry
① Boneless Sirloin Roast
① Sirloin Roast
Roast
SIRLOIN
①③④ Cutlets
①③④ Rolled Cutlets
Cutlets (Thin Slices)
③④ Round Steak
Braise, Panfry
② Boneless Rump Roast
② Rump Roast
③④ Round Roast
Roast, Braise
ROUND (LEG)
SHANK
⑤ Shank
⑤ Shank Cross Cuts
Braise, Cook in Liquid
BREAST
⑥ Breast
⑥ Stuffed Breast
Roast, Braise
⑥ Riblets
⑥ Boneless Riblets
Braise, Cook in Liquid
⑥ Stuffed Chops
Braise, Panfry
VEAL FOR GRINDING OR CUBING
Rolled Cubed Steaks**
Ground Veal*
Patties*
Braise
Roast (Bake), Braise, Panfry
Mock Chicken Legs*
* City Chicken
Choplets*
Braise, Panfry
*Veal for stew or grinding may be made from any cut
**Cubed steaks may be made from any thick solid piece of boneless veal
This chart approved by
National Live Stock and Meat Board
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Source: Courtesy of National Live Stock and Meat Board.

4 PORK

Pork is an excellent source of protein, containing all the essential amino acids, and is not high in fat. It is high in iron, zinc, and the B vitamins, especially thiamine. Every pork cut is tender. It is one of the most usable and completely digestible foods. Pork is economical and available fresh, cured, smoked, and canned. .... is an excellent source of protein and is not high in fat.

****

pork

Pork, like beef, is inspected for wholesomeness, but it is not graded for quality. It is graded for yield in the same way as beef. The following is the expected yield by grade:

Grade	Yield
US No. 1	53% and over
US No. 2	50 to 52.9%
US No. 3	47 to 49.9%
US No. 4	less than 47%

Select fresh pork that is firm and grayish pink with as little exterior fat as possible but with some internal marbling or write specifications to achieve the same results. Pork is inspected for .... but is not graded for quality.

****

wholesomeness

Pork roast may be purchased bone-in or boneless. The loin may be left whole or divided into blade end, center, and sirloin end roasts. The front quarter has a picnic or Boston butt and the hindquarter has the fresh ham, which may be left whole or divided into the shank end and the rump. (See the pork chart provided at the end of the chapter.) Pork .... may be purchased bone-in or boneless.

****
roast

Chops include loin, rib, sirloin, and blade chops; butterfly and boneless chops; and chops with a pocket for stuffing. Steaks are either shoulder or cubed steaks. Pork ribs may be spareribs, back ribs, and country style. Hocks and feet, ground pork, fresh sausage, and variety meats such as liver, kidney, and heart complete the list of fresh pork items available. Pork chops include butterfly, loin, ..., ..., and blade chops.

****
rib • sirloin

Ham is the hind leg of pork. In addition to the fresh ham described in the section on pork roast, it may be purchased cured and canned or cured and smoked. Cured pork has been treated with curing ingredients. The salt is used for flavor and as a preservative. The nitrates and nitrites combine with the meat to develop the typical red color of the cured product. These ingredients are usually applied in a brine solution that may be pumped into the meat. This procedure permits curing to be done quickly. Most processors leave some water in the meat to retain juiciness and fine texture. In federally inspected plants if the curing results in an increase in weight of up to 10%, the ham must be labeled "water added." If the weight increases more than 10%, it must be labeled "imitation." Cured ham is available ready to cook or fully cooked. It is available with some, all, or none of the skin, fat, and bone removed. It may be purchased whole or divided into butt, center, and shank or into butt half and shank half. "Half" means that no center slices have been removed. .... is the hind leg of pork.

****
ham

Country or dry-cured hams are produced by using a dry cure, slow smoking, and a long drying process. They are heavily salted and may require soaking and simmering before roasting. These may be called Virginia or Georgia hams depending on the state in which they are produced. Smithfield hams are hand-rubbed with salt, dry-cured in the salt, smoked, and dried. Because of their dryness and saltiness, these hams require soaking and simmering. Scotch hams are uncooked, boneless, mildly cured hams marketed in casings, a process that originated in Scotland. Prosciutto hams are Italian-type, ready to eat, highly seasoned, and dry. They are usually very thinly sliced and sold at delicatessen counters or prepackaged. Country hams are produced by using a ....

****

dry cure

Canned ham usually consists of boneless cured ham pieces that are placed in a can, then vacuum sealed and fully cooked. A small amount of dry gelatin is added before sealing to thicken the natural ham juices. The traditional pear-shaped canned hams range in weight from 1½ to 10 pounds. Pullman canned hams are 100 cm square so that slices will fit on sandwich bread. Chopped ham is canned in oblong cans for retail sale and in pullman cans for wholesale purchasing. .... usually consists of boneless cured ham pieces.

****

canned ham

A smoked picnic is not really a ham. It is from the shoulder, not the leg. It is usually less expensive and contains somewhat more internal fat and connective tissue. A smoked .... is not really a ham.

****

picnic

Cured and smoked cuts from the pork loin include smoked loin roasts, smoked loin and rib chops, and Canadian-style bacon. Canadian-style bacon consists primarily of the boneless "eye" of the loin muscle that is defatted and shaped into a compact roll and cured. Bacon is another popular cured and smoked pork product. It is cut from the pork side and is sold regular sliced (16 to 20 slices per pound); thick sliced (14 to 18 slices per pound); or slab style, which is uncut. Jowl, hocks, feet, and salt pork complete the list of cured and/or smoked pork items that are available. Bacon is a popular .... and .... pork product.

****

cured • smoked

Sausages are available in more than 200 variations. Pork is commonly used, but sausages may contain beef, veal, chicken, and other meats. The best source of information about each is the label. The label tells what the product is and the ingredients that are used, indicating the quantity of each by listing them in decreasing order of presence and including other information such as the preservatives and spices and seasonings used to give each product its distinctive flavor. In addition to salt, red, white, and black pepper; allspice; anise; bay leaves; cinnamon; and many other flavorings may be used. Sausages and ready-to-serve meats are generally grouped according to the processing method used. .... are available in more than 200 variations.

****

sausages

Fresh sausages are made from selected cuts of fresh meats. They have been neither cooked nor cured, so they must be cooked thoroughly before serving. Fresh pork sausage is available as bulk, links, patties, or country style. Other varieties include kielbasa (Polish), Italian, bratwurst, bockwurst, chorizo (link or bulk), and thuringer. Some of these varieties are also available smoked, cured, and/or fully cooked. .... are made from selected cuts of fresh meats.

****

fresh sausages

Uncooked smoked sausage sometimes includes cured meat that has been smoked but not cooked, so it must be cooked thoroughly before serving. Included in this category are smoked pork sausage, kielbasa, mettwurst, and smoked country-style sausage. Uncooked .... sometimes includes cured meat that has been smoked but not cooked.

****

smoked sausage

Cooked sausages are usually made from fresh meats that are cured during processing and are fully cooked. They are ready to eat, but some may be served hot. Included in this group are blood sausage, blood and tongue sausage, bockwurst, bratwurst, kiszka, liver loaf, yachwurst, braunschweiger, and liver sausage. .... are usually made from fresh meats that are cured during processing and are fully cooked.

****

cooked sausages

Cooked smoked sausages are made from fresh meats that are cured during processing and are fully cooked and ready to eat. Included in this group are bierwurst (beef salami), bologna, mettwurst, cotto salami, and frankfurters (weiners, German-style mortadella, and prasky). Also included are kielbasa, Krakow, New England sausage (Berliner), smoked thuringer links, teawurst, and vienna sausage. .... are fully cooked and ready to eat.

****

cooked smoked sausages

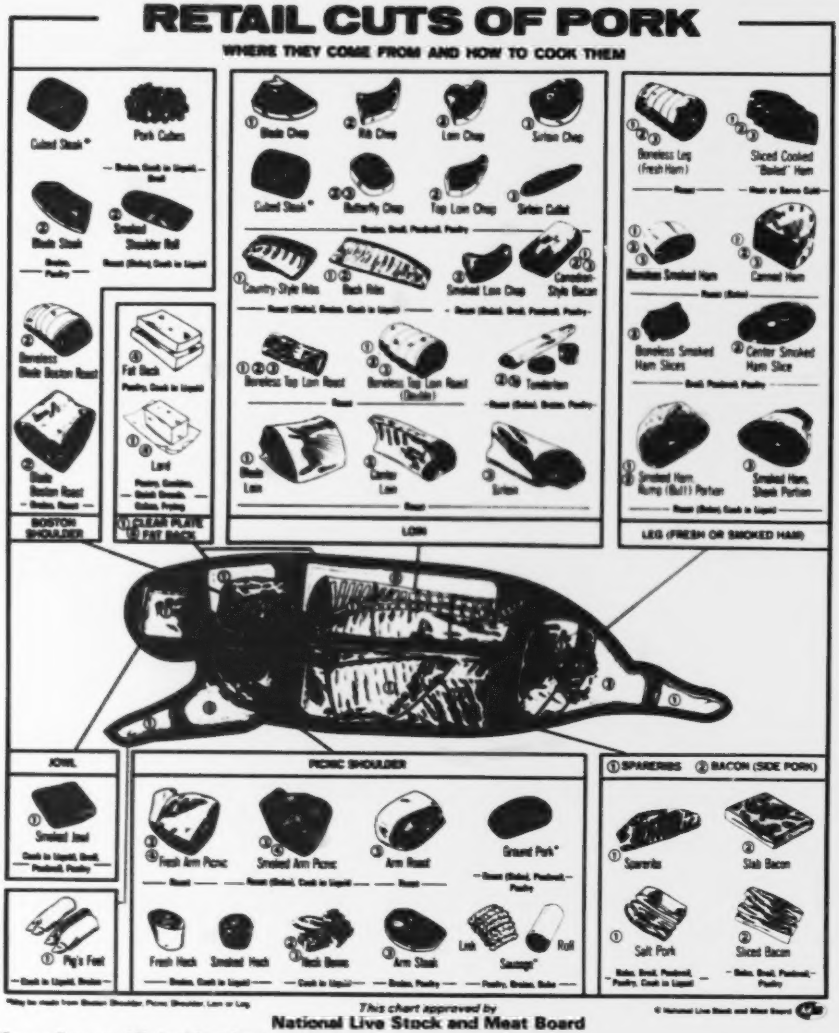
Dry and/or semidry sausages are made from fresh meats that are cured during processing and are either smoked or unsmoked. They are prepared by carefully controlled bacterial fermentation that acts as a preservative and develops the flavor. Most dry sausages are salamis. Most semidry sausages

are of the summer sausage type. Both are ready to eat and should be refrigerated. Included in this group are summer sausage, cervelat (farmer), thuringer, salami, Genoa, German (hard), kosher, Milano, chorizo, frizzes, Lebanon bologna, Lyons, medwurst (Swedish), Metz, mortadella, and pepperoni. Most dry sausages are ...., and most semidry sausages are of the ....
.... type.

****
salamis • summer sausage

Specialty meats (luncheon meats) are made from fresh meats that are cured during processing. They are fully cooked, sometimes baked. The loaves included in this group are Dutch, ham and cheese, honey, jellied tongue, minced ham, old-fashioned, olive, pepper, pickle and pimiento, chopped ham, headcheese, minced roll, scrapple sylta, and Vienna sausage. .... are fully cooked, sometimes baked.

****
specialty meats


RETAIL CUTS OF PORK
WHERE THEY COME FROM AND HOW TO COOK THEM
Cubed Steak*
Pork Cubes
Blade Steak
Smoked Shoulder Roll
Boneless Blade Boston Roast
Blade Boston Roast
BOSTON SHOULDER
Fat Back
Lard
① CLEAR PLATE
② FAT BACK
Blade Chop
Rib Chop
Loin Chop
Sirloin Chop
Cubed Steak*
Butterfly Chop
Top Loin Chop
Sirloin Cutlet
Country Style Ribs
Back Ribs
Smoked Loin Chop
Canadian-Style Bacon
Boneless Top Loin Roast
Boneless Top Loin Roast (Double)
Tenderloin
Blade Loin
Center Loin
Sirloin
LOIN
Boneless Leg (Fresh Ham)
Sliced Cooked "Boiled" Ham
Boneless Smoked Ham
Canned Ham
Boneless Smoked Ham Slices
Center Smoked Ham Slice
Smoked Ham Rump (Butt) Portion
Smoked Ham, Shank Portion
LEG (FRESH OR SMOKED HAM)
JOWL
Smoked Jowl
Pig's Feet
PICNIC SHOULDER
Fresh Arm Picnic
Smoked Arm Picnic
Arm Roast
Ground Pork*
Fresh Hock
Smoked Hock
Neck Bones
Arm Steak
Link
Roll
Sausage*
① SPARERIBS
② BACON (SIDE PORK)
Spareribs
Slab Bacon
Salt Pork
Sliced Bacon
This chart approved by
National Live Stock and Meat Board

Source: Courtesy of National Live Stock and Meat Board.

5 LAMB

Lamb is tasty and nutritious. It is usually tender because it is from animals less than one year old. Spring lamb includes all lambs born between March and October, so it covers most of our domestic supply. Lamb is usually .... because it is from animals less than one year old.

****
tender

Each USDA lamb grade is a measure of a distinct level of quality. There are five grades. Prime, Choice, and Good are similar to the same grades in beef. Utility and Cull are seldom sold as retail cuts. Prime is the most tender, juicy, and flavorful. Choice is the grade produced in the greatest volume, and suppliers have found that this quality satisfies most consumer needs. .... is the grade that satisfies most consumer needs.

****
Choice

In addition to lamb, the USDA has grades for yearling mutton, which is meat from sheep one to two years old, and for mutton, which is meat from older animals. The USDA has grades for .... mutton and ....

****
yearling • *mutton*

Grading of lamb is provided by the USDA Food and Quality Service to meat packers and others who request it and pay for it. Approximately two-thirds of all lamb produced is graded for quality. Grading of lamb is a service .... by the USDA.

****
provided

Lamb carcasses may also be graded for yield of trimmed retail cuts. (See yield grade table in Ch. 3.) Although only a small amount of lamb is graded for yield, the service is available, and the yield grade shield may appear on larger wholesale cuts. Imported lamb is not graded for quality or yield by the USDA, since it is usually imported frozen and only fresh meat can be graded, However, imported lamb must be inspected for wholesomeness by a system approved by the USDA and must bear the inspection legend of the exporting country. Lamb carcasses may be graded for .... of trimmed retail cuts.

****
yield

Lamb is available the year around. Most people are familiar with legs and chops. Many other cuts are equally good, and some are more economical. (See the lamb chart at the end of the chapter.) The leg of lamb is cut in a variety of ways–American style, French style, boneless, rolled, or butterflied. It may be whole with the sirloin portion left on, or it may be cut as sirloin half or shank half roast, center leg roast, or leg steaks. Chops and roasts, either boneless or bone-in, may be cut from the sirloin section. It costs less to buy the whole leg than the two halves separately. The leg may be left .... or cut into the sirloin and shank halves.

****
whole

Lamb loin may be cut as T-bone or boneless chops, or it may be left as a roast. Rib and loin chops are the most expensive. Sirloin chops are slightly less expensive, and shoulder chops are the most economical. .... and .... chops are the most expensive.

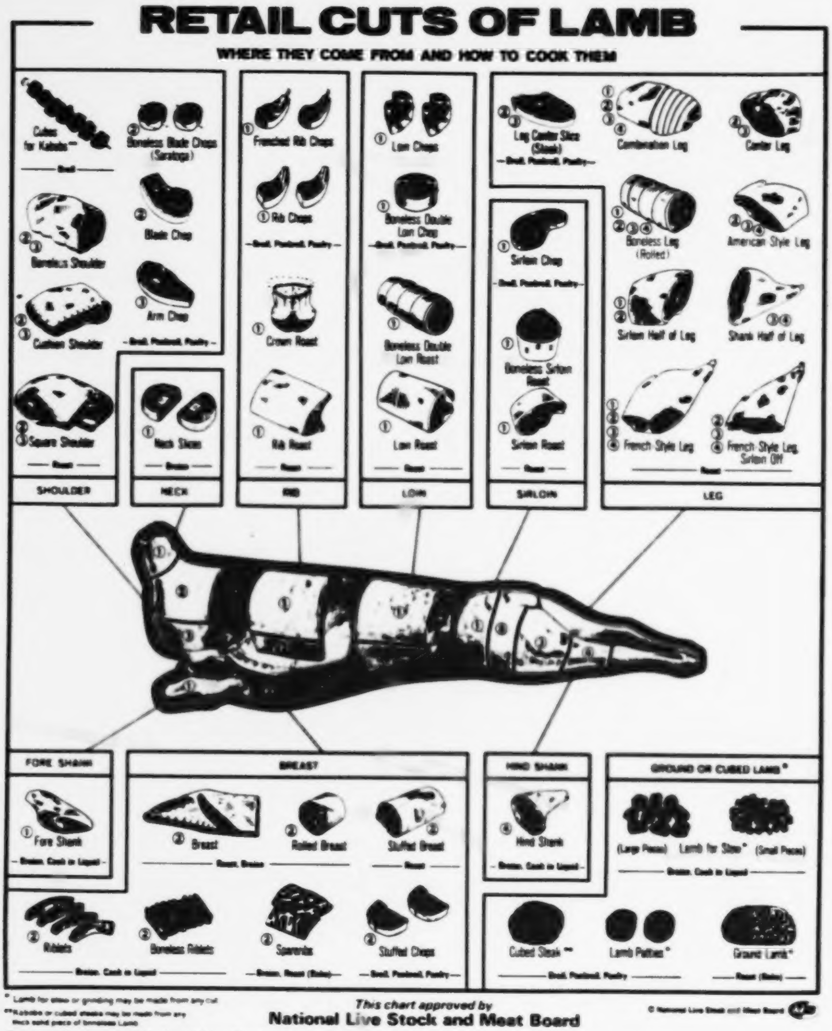
****
rib • loin

The lamb shoulder is usually less expensive than the leg. It may be purchased as a square-cut roast; presliced and tied; or boned, rolled, and tied. Arm and blade-bone shoulder chops may be cut from this roast. The meat may also be used in stews, in curries, and as brochettes. Shanks may be left whole or cut into sections for stew. The lamb .... is usually less expensive than the leg.

****
shoulder

Ground lamb may be used for lamb patties or casseroles or mixed with other meats for meat loaf. It is made from the neck, breast, or shank. .... lamb may be used for lamb patties.

****
ground


RETAIL CUTS OF LAMB
WHERE THEY COME FROM AND HOW TO COOK THEM
Cubes for Kabobs**
Broil
② Boneless Blade Chops (Saratoga)
② Blade Chop
③ Arm Chop
Broil, Panbroil, Panfry
②③ Boneless Shoulder
②③ Cushion Shoulder
②③ Square Shoulder
Roast
① Neck Slices
Braise
① Frenched Rib Chops
① Rib Chops
Broil, Panbroil, Panfry
① Crown Roast
① Rib Roast
Roast
① Loin Chops
① Boneless Double Loin Chop
Broil, Panbroil, Panfry
① Boneless Double Loin Roast
① Loin Roast
Roast
②③ Leg Center Slice (Steak)
Broil, Panbroil, Panfry
① Sirloin Chop
Broil, Panbroil, Panfry
① Boneless Sirloin Roast
① Sirloin Roast
Roast
①②③④ Combination Leg
②③ Center Leg
①②③④ Boneless Leg (Rolled)
②③④ American Style Leg
①② Sirloin Half of Leg
③④ Shank Half of Leg
①②③④ French Style Leg
②③④ French Style Leg, Sirloin Off
Roast
SHOULDER
NECK
RIB
LOIN
SIRLOIN
LEG
FORE SHANK
BREAST
HIND SHANK
GROUND OR CUBED LAMB*
① Fore Shank
Braise, Cook in Liquid
② Breast
② Rolled Breast
Roast, Braise
② Stuffed Breast
Roast
② Riblets
② Boneless Riblets
Braise, Cook in Liquid
② Spareribs
Braise, Roast (Bake)
② Stuffed Chops
Broil, Panbroil, Panfry
④ Hind Shank
Braise, Cook in Liquid
(Large Pieces) Lamb for Stew* (Small Pieces)
Braise, Cook in Liquid
Cubed Steak**
Lamb Patties*
Broil, Panbroil, Panfry
Ground Lamb*
Roast (Bake)
* Lamb for stew or grinding may be made from any cut
** Kabobs or cubed steaks may be made from any thick solid piece of boneless Lamb
This chart approved by
National Live Stock and Meat Board
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Source: Courtesy of National Live Stock and Meat Board.

6 FISH AND SEAFOOD

When buying fresh fish, let your nose be your guide. A truly fresh fish will have a sweet, pleasant smell, not a strong "fishy" odor. It should have clear, bulging eyes and shiny scales that adhere compactly to the skin. Test for freshness by pressing gently with the finger; if the impression remains in the flesh, the fish is stale. Fresh fish have a sweet, pleasant ....

****

smell

There are several popular varieties of lean fish. The name flounder covers an assortment of related fish including true flounder, fluke, plaice, and sole. They are mild tasting, low in calories, and available in fillets or whole for stuffing. Sole are closely related to flounder but are more expensive. Lemon sole has a firm texture and sweet taste. Gray and Dover sole are the elite of fish. Turbot is a European flatfish with good flavor. It also is closely related to flounder. Cod is extremely versatile. It is easy to eat whole because its few bones are large and easy to remove. Smaller cod are called scrod. Hake and haddock are related to cod and are tasty; they are good for stew and chowder. Also related are pollock, which have a similar taste but are darker in color. Bass may be steamed or poached whole. Sea and striped bass may be baked. Grouper is related to bass and comes from southern waters. Halibut is a large, flounderlike fish sold as steaks. It is ideal for broiling or poaching and has a mild nonfishy flavor. Flounder, sole, cod, bass, and halibut are all classed as .... fish.

****

lean

There are several popular varieties of fatty fish. Bluefish are smooth textured and have a sweet taste when fresh. They may be grilled whole, or fillets may be broiled or fried. Catfish that are farm grown have a mild flavor. They are broiled, fried, or grilled whole and are easy to eat because they do not have small bones in the flesh. Salmon are available mainly from May to October; they combine a rosy pink color with a rich, buttery taste. Usually available in steak form, they may be cooked by almost any method; they may also be poached and served cold. Trout are related to salmon. Lake and river trout are gray fleshed, while sea trout are pink fleshed. They may be grilled whole or filleted and served with almonds. Red snapper is a large, red-scaled fish with a unique taste. Steaks and fillets are best when broiled in butter. When buying, specify Gulf rather than Pacific snapper. Mackerel is available whole or cut into steaks. West Coast varieties are known as bonito. Tuna (a member of the mackerel family) is available as steaks, which have a hearty texture and meaty taste. They may be broiled. Swordfish is an expensive novelty; the steaks are best when broiled in butter. Bluefish, catfish, salmon, trout, red snapper, mackerel, tuna, and swordfish are all classed as .... fish.

****

fatty

Fish is extremely perishable and should be used as soon as possible. Wrap in foil or place in a pan and cover with crushed ice. Even when properly stored, fish will start to decay within three days. For long storage, freezing is best. Fish is extremely .... and should be used within three days.

****

perishable

Frozen fish and shellfish are available the year around. Most fresh fish are available frozen, most likely as fillets or steaks. Fillets are the sides of fish cut lengthwise to clear the back and rib bones and are practically boneless. Steaks are cross-section slices cut ⅝ to 1 inch thick from a large, dressed fish. Frozen fish are generally available as ....
or ....

****

fillets • steaks

Less expensive and less desirable varieties such as whitefish are portioned and breaded. Breaded fish portions are made up by cutting them from frozen fish blocks then coating them with butter or oil, breading, packaging, and freezing; these may be raw or precooked. They may be square, oblong, or fillet shaped. United States Department of Interior (USDI) standards require that raw portions must contain not less than 75% fish flesh and fried portions not less than 65% fish flesh. Standards for frozen fish portions are set by the ....

****
USDI

Fish sticks are cut from frozen fish blocks, coated with oil, breaded, partially cooked, packaged, and frozen. USDI standards require that they contain not less than 60% fish flesh. Frozen fish sticks must contain not less than .... fish flesh.

****
60%

Packages should be kept frozen solid in a tight moistureproof, vaporproof wrapping. An ice glaze is often used to protect seafood from drying out. Any discoloration may indicate a deterioration of quality. Seafood must be kept .... solid to preserve freshness.

****
frozen

To defrost fish, place the wrapped fish in the refrigerator. If thawed at room temperature or in warm water, fish becomes soggy. If it is to be broiled, baked, poached, pan fried, or deep-fat fried, the fish does not have to be defrosted before preparation. Defrost the wrapped fish in the ....

****
refrigerator

Canned fish is usually tuna or salmon, but may include sardines, mackerel, anchovies, shrimp, crabmeat, or clams. Salmon is identified by variety, since there are differences in color, texture, and flavor. The most expensive varieties are deeper red in color and have a higher fat content. Varieties, in order of expense, are sockeye (red), king or chinook, coho (silver or medium red), humpback (pink), and keta or chum. The most expensive varieties of salmon are deeper .... in color and have a higher ....content.

****

red • fat

Tuna is a member of the mackerel family. It is either light or white. The albacore is the only white-meat tuna of the species and is the most expensive. Light tuna may be skipjack, yellowfin, or bluefin. Canned tuna may be solid pack, chunk style, flaked, or grated. Most of it is salted and seasoned and has oil added, but it may be packed in water with reduced salt or kept salt-free. Albacore is the only .... meat tuna and is the most ....

****

white • expensive

The label will tell the grade, size, species, contents, weight, and ingredients added. Canned fish has a shelf life of two to three years. It has a 100% yield, so it is easy to determine the amount to purchase if the size of serving and number to be served is known. Much valuable information needed for purchasing is found on the ....

****

label

Fatty fish provide twice as much protein, fat, iron, phosphorus, potassium, and niacin and other vitamins as well as twice as many calories as lean fish. Fatty fish provide .... as much protein, fat, and other nutrients as lean fish.

****

twice

Shrimp is available either fresh or frozen. Breaded and headless shrimp in the shell is usually purchased in 3, 5, or 6 pound boxes. Peeled and deveined shrimp is purchased in 3 or 5 pound bags and is specified by the number of shrimp per pound. The smallest is called popcorn shrimp and has 40 or more per pound. Small has 31 to 35 per pound; medium has 26 to 30 per pound and is the size most frequently used for salads. Large has 21 to 25 per pound; jumbo has 16 to 20 per pound and is the most frequently used size for shrimp cocktail and hors d'oeuvres. Extra jumbo has 10 to 15 per pound, and they are the most expensive. Cost per pound decreases as the number per pound increases. Shrimp shapes are a less expensive fabricated product made from shrimp pieces that are extruded in the shape of shrimp and breaded. Shrimp patties are also available. Shrimp is specified by the .... of shrimp per pound.

****

number

Scallops are the muscles removed from scallop shells and have a characteristic sweet flavor. They are packed fresh in 8 gallon containers, but smaller amounts may be available from the supplier. The two most common sizes of sea scallops are 20 to 30 pieces per gallon and 30 to 40 per gallon. Bay scallops are much smaller and are usually available only in areas close to the water from which they are harvested. Formed scallops, which are made of pieces and shaped to look like scallops, are available at a lower cost. They are usually sold fresh but are available frozen. There are two common sizes of .... scallops.

****

sea

Lobsters purchased whole are shipped alive. The meat is white and sweet. Warm water varieties come from the Caribbean and have a firm shell. Cold water varieties come from South Africa, New Zealand, and Maine and have a harder shell. They range in size from the chicks, which are 1 pound or under, to jumbo, which are 2¾ to 3½ pounds each with intermediate sizes of 1¼ to 1½ pounds; selects at 1½ to 1¾ pounds; and extra selects at 1¾ to 2 pounds. They are shipped in crates of 25 lobsters each. Lobster tails are usually purchased frozen. They are packed in 5 pound boxes and are sized within the box. The three most common sizes are 8 to 10 ounces each, 10 to 16 ounces, and 16 to 20 ounces. Slipper lobster, the small pieces of meat removed from the remainder of the lobster after the tail has been removed, is packed in 5 pound boxes and shipped frozen. Whole lobsters are shipped ....

****

alive

Monkfish is a newcomer to the market and differs from traditional fish. It has a skin that is removed in the processing plants before shipping. The fish are round in shape and covered with a membrane that must be removed before cooking. Each fish weighs from 1 to 3 pounds and because of its flavor has been called "poor man's lobster." Monkfish has a .... that is removed before shipping and is .... in shape.

****

skin • round

There are many varieties of crab. The most common ones used in food service are snow, Dungeness, blue, stone, and king. Snow crabs may be either opillio, which are small and less quality, or baridi, which are larger and select. They are packed in 5 pound boxes. Dungeness are harvested on the Pacific coast. They are round to oval in shape and are packaged whole in 5 pound boxes, which may be shipped fresh or frozen. Blue crab are small with soft shells. They are harvested along the Atlantic coast and are usually shipped fresh in 5 and 10 pound boxes. Stone crabs are ½ to ¾ pound each and are shipped in 10 and 20 pound bags. King crabs are named for the area where they are harvested. One of the more popular varieties is the Alaskan king, which comes from the waters off the Alaskan shores. They are precooked in the processing plant, and the legs are removed and shipped frozen. The legs are not sized, so each box will have a variety of sizes. The crabmeat from the rest of the body is removed and packed in 5 pound boxes and shipped frozen. Whole crabs, crab legs, and crab meat are all considered a delicacy and are quite expensive. "Sea legs" are made from a lower quality fish with a crablike texture that has been injected with a crab taste and dye and formed to resemble crab legs. The most common crabs used in food service are ...., Dungeness, blue, stone, and ....

****
snow • *king*

Fresh clams are packed and shipped in bushel bags. The two most common sizes are cherrystone, which are 250 count, and littlenecks, which are 300 to 350 count. Fresh clams are available locally. Frozen clams, in the shell, are packed in 30 pound containers and are usually littlenecks. Smaller clams, called steamers, are 400 count. They are shipped frozen in 3 pound bags. Clams are also available canned whole or minced. Two kinds of clams are .... and ....

****
cherrystone • *littleneck*

Oysters are available and plentiful from September to April. They may be purchased in the shell, but most are shelled, packed in gallon containers, and shipped fresh. The sizes most often available are selects, which are 200 per gallon, and standards, which are 250 per gallon. West Coast frying oysters, 8 to 10 per pound, are shipped fresh and are more expensive because of the large size. Oysters are available from .... to ....

****
September • *April*

7 POULTRY

US poultry grades apply to turkey, chicken, duck, goose, and guinea. The grade shield appears on the package of chilled or frozen ready-to-cook birds or parts. Poultry is federally inspected for wholesomeness, then it is graded for quality. Before grading for quality, poultry is federally inspected for ....

****
wholesomeness

Grade A birds are fully fleshed, meaty, and free from defects such as pinfeathers and skin tears. Grade B birds may be less attractive in finish and appearance, and slightly lacking in meatiness. A broken wing or broken skin may cause the product to be lowered to Grade B. A bird not displaying a grade marking is usually Grade B. .... birds are fully fleshed, meaty, and attractive; .... birds are not so meaty and less attractive.

****
Grade A • Grade B

Poultry labels should be used to indentify the type of product desired for your meals. Young poultry means tender poultry. Young chickens are labeled fryer, broiler, roaster, young chicken, capon, or Rock Cornish game hen. Young turkeys are labeled young hen, young tom, young turkey, or fryer-roaster. Older poultry is labeled as mature, yearling, stewing, or old. It is generally used for soups, stews, roasting, and casseroles. Young poultry means .... poultry; poultry used in stews and casseroles is ....

****
tender • older

Turkey is available in a wide variety of forms such as whole, parts, boneless, breast and thigh, cooked, rolls, smoked, and cubes, depending on the amount of processing done prior to purchase. There are many types of products on the market, and the wise buyer will investigate all the options and select according to the intended use. A wise buyer will select the products needed according to the ....

****

intended use

Institutions that purchase whole turkeys in wholesale quantities generally prefer those weighing 18 to 22 pounds. Large turkeys provide a better yield and usually are priced a few cents a pound less than smaller hens or toms. They may be roasted whole or may be cut into halves or quarters for easier handling; they require less cooking time and less oven space. Large turkeys provide a better .... and are usually priced a few cents a pound .... than smaller turkeys.

****

yield • less

Cooked yields are difficult to estimate; however, approximately 50% of the dressed weight of the bird is usable meat if cooked at the suggested temperature of 325°F (175°C). Approximately .... of the dressed weight of the bird is .... meat.

****

50% • usable

Turkey and chicken are used almost interchangeably in many facilities. Turkeys are larger, thus the percentage of usable meat in relation to bone is greater than in chickens. Turkey pieces are larger and yield better slices for sandwiches. Turkey may be used interchangeably with ....; turkey has a larger percentage of
....

****

chicken • usable meat

The best quality boneless cooked turkey parts are composed of breast and/or thigh meat. They are especially good for small establishments. Since the meat is cooked before it is sold, there is very little shrinkage and it is easy to estimate the number of portions it will yield. Precooked boneless turkey parts will yield 92% of their "as purchased" weight. Ready-to-cook boneless turkey parts will yield 61% of their "as purchased" weight. Precooked turkey will have greater .... than the ready-to-cook variety.

****

yield

It is necessary to compare price per pound or ounce of boneless usable meat in making the decision about what product to purchase. For example, to yield 100 2 ounce servings of turkey, three of the possible sources are a 13¾ pound precooked turkey roll, a 20½ pound ready-to-cook turkey roll, or 6½ 35 ounce cans of boned turkey. Compare the price per .... or .... of boneless usable meat.

****

pound • ounce

Formed turkey rolls are available in your choice of all white meat, all dark meat, or a combination. The combination of white and dark meat usually costs less. The rolls are formed by forcing pieces of turkey, pureed turkey, and gelatin into a tube mold. The formed turkey roll that is lowest in cost is a .... of white and dark meat.

****

combination

Precooked diced turkey is available in 5 pound bags. Because it is precooked and boneless it has a yield of 100%. The pieces are individually frozen, so part of the package may be used and the rest returned to the freezer without product deterioration. Frozen diced turkey is precooked and ....

****

boneless

Turkey ham, a fully cooked and smoked turkey roast, has a flavor very much like traditional ham. It is usually available in a roast that is about 10 pounds. It is less expensive than ham and has a yield of 100% because it is fully cooked and boneless. A product called turkey pastrami is also available. It comes in a 7 to 8 pound roll, two rolls to a box. Turkey ham has a .... like traditional ham.

****

flavor

The weight of a ready-to-cook chicken is usually 65% of the liveweight. If fresh chickens are cut up by the supplier, a fee for the cutting process will be included in the price. This cost can be reduced if someone in the facility has the time and talent to do this processing. The ready-to-cook weight of chicken is about .... of the liveweight.

****

65%

The price per pound for poultry is often low, yet the price per serving is increased by the high percentage of bone. About ½ pound of uncooked, oven-ready chicken is usually allowed per person, depending on the size of serving desired. A 5 pound stewing hen will yield about 21 ounces of cooked boneless meat. The price per serving of poultry is increased by the high percentage of ....

****

bone

When purchasing chicken, select the type of bird best suited for the intended cooking method. If moist heat will be used, buy roosters or old hens.

If dry heat will be used, purchase young hens, fryers, or broilers. Roosters and old hens should be cooked by .... heat; fryers and broilers may be cooked by .... heat.

****

moist • dry

Frozen pieces of chicken are convenient and easy to use because exact sizes and kinds of pieces desired are available. Breasts, legs and thighs, and wings and drumettes are packed in separate boxes so that the exact kind and amount needed can be purchased. Partial boxes may be returned to the freezer, still frozen, for storage until needed. Frozen pieces of chicken are .... and easy to use.

****

convenient

Frozen chicken pieces are available prebreaded. They are usually packed partially cooked but are also available in heat-and-serve form. Other breaded specialty items include breast patties, breast fingers, nuggets, breast fillets, breast strips, white and dark patties, and formed patties with added textured vegetable protein. Frozen chicken pieces are usually packed ....

****

partially cooked

Chicken can be preprocessed into gourmet items such as chicken Kiev, chicken cordon bleu, and stuffed breast. These items provide a quick special menu item, but they are very expensive so should be used with discretion. Chicken can be preprocessed into .... items.

****

gourmet

Frozen pulled chicken and frozen diced chicken are not only natural chicken products but have been handled in such a way as to extend the shelf life as well as the safe holding time after incorporation into food items. The pieces are individually quick frozen (IQF), so that part of the container contents may be removed and used, and that remaining can be left frozen and returned to the freezer without damage to the product. Frozen .... chicken and frozen .... chicken are IQF.

****

pulled • diced

Novelty items such as frankfurters, bologna, and corn dogs can be made from chicken. Because of the added ingredients and spices, they assume the characteristic flavors of their counterparts made of beef and pork. Frankfurters and bologna can be made out of ....

****

chicken

Care should be used in handling poultry products. Poultry is very perishable. Frozen poultry should be kept hard-frozen until time to thaw. Use fresh-chilled poultry within one to two days. All poultry is very ....

****

perishable

There are three ways to thaw a frozen bird: (1) In the refrigerator – place poultry, still in its original wrap, in a tray or pan. Thaw in the refrigerator for one or two days until pliable. Turkeys weighing 18 pounds or more may take up to three days to thaw. (2) In cold water – if poultry needs to be thawed on short notice, it should be placed in cold water in its watertight wrapping. Change the water often to hasten thawing. Time required will range from one hour for small birds to six to eight hours for large turkeys. Thaw until pliable. (3) In the cooking process – take the bird directly from the freezer and place in the oven. Increase the cooking time by 10 to 15%. If poultry is not to be cooked immediately, place it in the refrigerator. Thaw frozen poultry in the ...., in cold

.........................., or in the ....

....

****
refrigerator • water • cooking process

When IQF chicken parts or pieces are purchased, thawing is not necessary before cooking. IQF chicken may be used as fresh poultry. IQF chicken need not be .... before cooking.

****
thawed

8 EGGS

Eggs are among the most versatile of foods. They are prepared in a variety of ways for breakfast and are an ingredient in salads, desserts, entrees, and baked products. They are an inexpensive and convenient source of high-quality complete protein. Eggs are an .... and convenient source of high-quality complete ....

****
inexpensive • protein

The United States Department of Agriculture (USDA) shield provides the buyer with information about grade and size of eggs. The letter designation used for grade is not influenced by the egg size. Eggs are graded according to condition, interior quality, and appearance of the shell. The grading is done under controlled conditions and with the supervision of a USDA inspector. The USDA shield provides the buyer with information about .... and .... of eggs.

****
grade • size

Eggs may be graded AA or Fresh Fancy, A, and B. The USDA Quality Control Program sets up standards requiring Grade AA eggs to reach the market quickly under strictly controlled conditions, guaranteeing the consumer a fresh, top-quality product. Eggs may be graded ...., ..., or ....

****
AA • A • B

Grade AA eggs cover a small area when broken; the white is thick and stands high and the yolk is firm and high. Grade A eggs cover a moderate area when broken; the white is reasonably thick and stands fairly high and the yolk is firm and high. Grade B eggs cover a large area when broken; the white is thin and the yolk covers a larger area. When appearance is important, as in poaching or frying, Grade AA and A eggs are preferred. When appearance is not important, as in general cooking and preparation of baked products, Grade B eggs are satisfactory. Grade AA and A eggs are good for poaching and frying, where .... is important.

****
appearance

Shell color does not affect the grade, flavor, cooking performance, or nutritive value of the egg. It is determined by the breed of the hen. The purpose of the shell is to provide a safe, convenient container that is moistureproof and bacteriaproof. Buying checked or cracked eggs is a poor decision, for these eggs may be source of salmonella bacteria, which cause food-borne infection. Checked or cracked eggs may be a source of ....

****
salmonella

Size and quality are entirely different. Size of eggs refers to minimum weight per dozen. Quality refers to the grade. Size refers to minimum .... per dozen.

****
weight

The choice of eggs to purchase is dependent upon the intended use. For poached or fried eggs, the smallest and least expensive egg that is consistent with quantity standards is the best choice. For omelets, batters, or scrambled eggs, the most liquid egg of good quality for the money is the best choice. The purchase of eggs is dependent upon the ....

****
intended use

To determine the best egg buy, compare the prices of different sizes within the same grade. A quick way to compare value per dozen of eggs is the seven-cent rule. If there is less than a seven-cent price difference per dozen between one size and the next in the same grade, the most value is attained by buying the larger size. If there is more than a seven-cent price difference per dozen between one size and the next in the same grade, the smaller size is the better buy. To compare the value per dozen, use the .... rule.

****
seven-cent

The following table gives the ounces by weight and the ounces by liquid volume (shells not included) of a dozen eggs:

Egg size	Weight	Liquid volume
Jumbo	30 oz	26.7 oz
Extra large	27	24.0
Large	24	21.4
Medium	21	18.7
Small	18	16.0
Peewee	15	13.4

To compare the cost of different sizes of eggs, divide the cost of a dozen eggs by the liquid volume. This is the cost per liquid ounce. Divide the .... of a dozen eggs by the ounces of .... to find the cost per ....

****
cost • liquid volume • liquid ounce

To decide whether to buy small eggs for 88¢ per dozen or extra large eggs for $1.30 per dozen, determine which would be the best buy. Use the following formula to calculate the cost per liquid ounce:

$$\frac{88}{16} = 5.5¢ \text{ (small)} \qquad \frac{1.30}{24} = 5.4¢ \text{ (extra large)}$$

The best buy in this example would be the ....
.... eggs.

****

extra large

Cost-conscious buyers will want to investigate alternative forms of eggs. Processed eggs are available as liquid bulk and as frozen whole eggs, egg yolks, and egg whites. These are timesaving and require little storage space. Popular container sizes are 30 pound pails, a box of four 10 pound pure-pack waxed cartons, and a box of six 5 pound cans. Processed eggs are available as .... bulk and .... whole eggs.

****

liquid • frozen

The following information and calculations illustrate how to compare the cost of preparing 200 2 ounce servings of scrambled eggs. Small eggs cost 88¢ per dozen, extra large eggs cost $1.30 per dozen, and frozen eggs are available in a box of four 10 pound cartons at a cost of $36 (90¢/lb). It takes one minute to break 10 fresh eggs and one minute to open and empty a container of frozen eggs. The salary is $5.00 per hour. The cost is calculated as follows:

Small eggs:

$$\frac{200 \times 2 \text{ oz}}{16 \text{ oz}} = 25 \text{ doz} \times 88¢ = \$22.00$$

$$\frac{25 \text{ doz} \times 12}{10 \times 60} = .5 \text{ hr} \times 5.00 = \underline{\$2.50}$$

Total cost $24.50

Extra large eggs:

$$\frac{200 \times 2 \text{ oz}}{24 \text{ oz}} = 16.67 \text{ doz} \times 1.30 = \$21.67$$

$$\frac{16.67 \text{ doz} \times 12}{10 \times 60} = .33 \text{ hr} \times 5.00 = \underline{\$1.65}$$

Total cost $23.32

$$\text{Frozen eggs: } \frac{200 \times 2\text{ oz}}{16\text{ oz}} = 25\text{ lb} \times 90¢ = \$22.50$$

$$\frac{1}{60} = .0167\text{ hr} \times 5.00 = \underline{.08}$$

$$\text{Total cost } \$22.58$$

The best buy in this example is .... eggs.

****

frozen

Precooked frozen scrambled eggs are available in a 1¾ ounce patty or in a folded 3½ ounce omelet. Both can be reconstituted in a microwave oven. Precooked frozen scrambled eggs are available in a .... or a folded ....

****

patty • omelet

Freeze-dried, scrambled egg mix is sold in a No. 10, 20 ounce can, six cans per case. Frozen scrambled eggs are sold in 4 pound waxed containers. Low-fat milk solids are added. Some processors have other ingredients such as stabilizers and seasonings listed on the container. This product makes a high-quality, very acceptable serving of scrambled eggs. Scrambled egg mix that is .... is sold in No. 10 cans.

****

freeze-dried

Dried eggs are used chiefly as ingredients in bakery products. They are available as whole eggs, yolks, or whites. The container size is either 3 pound cans, six per case, or 50 pound drums. Dried eggs are used in

....

****

bakery products

Precooked and prepeeled perfect eggs and salad eggs should be considered if labor is an important factor. The processing is done in such a way as to perfectly center the yolk, prevent a green ring around it, and increase the shelf life to six weeks. Salad eggs are broken pieces with at least 20% perfect whole eggs. For many facilities this is a good ratio of perfect eggs to broken eggs to be used in salads and creamed dishes. The perfect eggs are also available in a preshaped elongated egg that supplies a large number of perfect slices for use as garnish. Precooked and prepeeled eggs will save

....

****
labor

9

DAIRY PRODUCTS AND ALTERNATIVES

In the United States and some European countries, dairy products and alternatives account for over 15% of the food budget. Milk is a good source of protein, calcium, and riboflavin, and whole milk is a good source of vitamin A, making milk a good nutritive value. Dairy products and alternatives account for over .... of the food budget.

****
15%

In 40 states only Grade A pasteurized milk can be sold in fluid form for consumption as a beverage or in cooking. In other states this is recommended as a safe practice. Grade A milk must be produced according to the guidelines published by the U.S. Public Health Ordinance, which are enforced by state and local sanitarians. Pasteurization, a process that eliminates harmful (pathogenic) bacteria, was a requirement of the dairy industry long before grades were established or enforced. .... is a process that eliminates harmful bacteria.

****
pasteurization

Homogenized milk is processed to break down the fat globules into minute particles that remain suspended in solution. This process increases the shelf life and the digestibility of the product. .... milk is processed to break down the fat globules.

****
homogenzied

Whole milk usually contains 3.5% milk fat and 8.5% nonfat milk solids. Some specialty products advertising richness will contain 4.5 to 5% fat. Low-fat milk contains about 2% milk fat and has 10% nonfat milk solids. Skim milk has had most of the fat removed and contains less than 1% milk fat. It may or may not have nonfat milk solids added. Whole milk contains .... milk fat, low-fat milk contains .... milk fat, and skim milk contains less than .... milk fat.

****

3.5% • 2% • 1%

Bulk milk can usually be purchased in 5 gallon containers more economically than in smaller containers. It is available in 1 gallon, ½ gallon, quart, pint, ⅓ pint, or ½ pint containers, which may be paper or plastic. The various sizes should be evaluated in terms of cost and convenience. Bulk milk is usually more .... than milk in smaller containers.

****

economical

Chocolate milk, chocolate-flavored milk, and dairy drink are made by adding chocolate flavoring materials to milk. The term chocolate milk is used when flavorings are added to whole milk. If the flavorings are added to any other milk product, it must be called a drink or beverage. Similar products are available in which the flavoring is coffee, banana, eggnog, or strawberry. Chocolate milk and various dairy drinks are made by adding chocolate or other .... to milk.

****

flavorings

Buttermilk is skim milk to which *Streptococcus lactus* bacterial culture has been added. This process ferments the milk to obtain a thick viscosity and slightly acid, aromatic flavor. If made with whole milk, the buttermilk will contain a higher ratio of butterfat. Buttermilk is skim milk to which bacterial .... has been added.

****

culture

Yogurt is another milk product that is cultured. *Streptococcus thermophilus, Lactobacillus bulgaricus*, and/or *L. acidophilus* are added to milk to produce a thick, creamy product with strong acid flavor and characteristic aroma. It may be made with whole milk, low-fat milk, or nonfat milk. It is available in frozen, frozen on a stick, semisolid, or liquid forms. It may be blended with fruit flavorings, coffee, or vanilla; nuts or fruit may be added during packaging. *L. acidophilus* culture is added to low-fat milk to produce sweet acidophilus milk for people who have difficulty digesting untreated milk. It does not have the flavor, aroma, or thickness of yogurt. .... is a cultured product.

****

yogurt

Dry milk, evaporated milk, and condensed milk are processed milk products. They may be used as recipe ingredients and are desirable because of their convenient storage, longer shelf life, and economical cost. Dry milk, ... milk, and .... milk are processed milk products.

****

evaporated • condensed

Nonfat dry (NFD) milk is pasteurized fluid milk from which fat and water have been removed; protein, vitamins, and minerals are retained. Regular NFD milk has small particles that require reconstitution with a whip or separation by other dry ingredients in a recipe. Instant NFD milk has larger particles or flakes that reconstitute easily. Instant NFD milk has larger particles that .... easily.

****

reconstitute

Filled milk (imitation milk) looks and tastes like regular milk but usually costs less. Filled milk is made from skim milk and vegetable fat instead of butterfat. It contains less nutritive value than regular milk. Filled milk contains .... fat instead of butterfat.

****
vegetable

Evaporated milk is unsweetened milk with about 60% of the water removed by evaporation. It may be diluted one part water to one part evaporated milk and substituted for whole milk. It may be used as a substitute for cream if left undiluted. .... milk is unsweetened milk with about 60% of the water removed.

****
evaporated

Condensed milk is evaporated milk that has been sweetened with sugar. It is used in desserts, candies, and beverages. Condensed milk is .... evaporated milk.

****
sweetened

Cream is separated from milk through the gravitation process or by using centrifuge separators. Cream is classified according to the percentage of butterfat. Varieties of cream range from half-and-half to whipping cream. Half-and-half contains 10 to 12% fat with added milk solids. Light cream or coffee cream contains 16 to 20% fat, and all-purpose cream contains 20 to 25% fat. Cream is usually packaged in pint or quart waxed cartons. Coffee cream may also be available in individual portions. Cream is classified according to the percentage of ....

****
butterfat

Whipping cream contains 30 to 40% butterfat. It is usually used in food service for the production of whipped cream. It is available in ½ pint, pint, and quart waxed cartons. Whipping cream contains .... to .... fat content.

****

30% • 40%

Coffee whitener and whipped topping are generally nondairy or imitation products sometimes substituted for their real dairy counterparts. They are formulated from a combination of vegetable fats and are often less expensive and have a longer shelf life than dairy products. Coffee whitener and whipped topping are generally .... products.

****

nondairy

Sour cream is light cream to which a bacterial culture has been added. It has a fat content of about 18%. Container sizes range from 5 ounces to 5 pounds. It is available plain or can have a variety of flavorings added to it. .... is light cream to which a bacterial culture has been added.

****

sour cream

Ice cream is a blend of dairy products, sweetening agents, stabilizers, emulsifiers, and added flavoring materials. It has been frozen and whipped. The three categories of commercial ice cream are: competitive, containing 10% fat; average, containing 12% fat; and premium, containing 15% fat. As the fat content increases, there is usually an increase in the quantity of flavoring material used. Also, as the fat content increases, the amount of overrun decreases. Overrun is the amount of air incorporated during the freezing and whipping process.................. .... is a blend of dairy products, sweetening agents, stabilizers, emulsifiers, and added flavorings.

****

ice cream

French ice cream generally has a higher butterfat content, contains more eggs and flavoring, and is a deeper yellow color when vanilla flavored. Fancy ice cream and ice cream novelties include such items as pies, cakes, spumoni, sandwiches, cups, nut rolls, molds, slices, and ice cream on a stick with a variety of centers and coatings. Most are ready to serve and individually wrapped. French ice cream generally has a higher .... content.

****

butterfat

Ice milk contains 3 to 8% butterfat, which is less than in ice cream. It has nonfat milk solids added during processing and can be flavored and made into novelties in the same way as ice cream. Ice milk is often less expensive than ice cream. Both are available in a range of container sizes. Bulk products may be packed in 3, 5, or 6 gallon containers. They may also be purchased in gallons, half gallons, quarts, pints and individual cups. .... contains less butterfat than ice cream.

****

ice milk

Ice cream and milk shake mixes are available for facilities that have access to a soft serve machine or shake maker. Shake mix contains 3.5% butterfat and is available in 1 gallon or 5 gallon containers. Soft serve or ice cream mix is usually 4% butterfat but can be ordered at any fat level if the order is large enough to make it economically feasible for the supplier to prepare the mix to specifications. It is usually packaged in ½ gallon or 5 gallon containers. .... mix is available for facilities that make their own soft serve.

****

ice cream

Sherbet is made from milk with fruit juices and other flavorings added. It may or may not contain egg white and is lower in fat than ice milk. It is available in bulk, gallons, half gallons, quarts, pints, and individual cups. Sherbet is made from .... with fruit juices and flavorings added.

****
milk

Water ice is made from water and sugar with fruit juices or other flavorings added. It contains no milk. It is usually available only as a special order and can be packed in whatever container size is specified. Water ice is made from .... and .... with fruit juices and other flavorings added.

****
water • sugar

Preportioned frozen desserts provide portion control. The decision about whether to purchase bulk desserts or individual portions will depend on a comparison of cost, convenience, and product acceptability. The savings realized by buying bulk desserts may be negated by poor dipping techniques or deterioration resulting from lengthy storage time. The decision about whether to purchase bulk desserts or individual portions will depend on a comparison of ...., and product ....

****
cost • convenience • acceptability

Butter is made from sweet or sour cream and contains not less than 80% butterfat. A lactic acid culture may be added before churning. The addition of salt and coloring is optional. Butter that has been officially graded by the USDA bears a shield on the package with a letter that indicates the quality at the time of grading. Grades of butter relate to the quality factors of flavor, body, texture, color, and salt. Grade AA is score 93 butter, Grade A is score 92, Grade B is score 90, and Grade C is score 89. It is available in cuts packaged 90 per pound on parchment sheets, readies that are cuts on individual cardboard squares topped with waxed paper, cups packed 60 or 72 per pound, foil-wrapped cuts that are 60 or 72 per pound, 1/4 pound sticks, 1 pound blocks, and 68 pound blocks. .... is made from cream and contains not less than 80% butterfat.

****

butter

Whipped butter has been stirred and whipped to incorporate air, increase the volume, and make it easier to spread. It may be salted and may have water added. It is sometimes called low calorie because the volume is increased with air and water. It is available in individual portions and in 8 ounce, 12 ounce, 1 pound, and 5 pound tubs. .... has been whipped to incorporate air and make it easier to spread.

****

whipped butter

Margarines are made from refined vegetable oils or a combination of animal fats and vegetable oils emulsified with cultured milk, sweet milk, nonfat dry milk solids, water, or mixture of these. The product is cooled and mechanically kneaded to produce the desired consistency. Color and butter flavoring or butter and vitamins are added. The addition of salt is optional. The law requires that, like butter, margarine must contain 80% fat unless it is labeled imitation or diet. The label must state the fat or fats used. Regular margarine is available in 1/4 pound or 1 pound prints. Whipped margarine, like whipped buter, is regular margarine that has been whipped. It is available in 1/2 pound, 1 pound, and in 5 pound tubs. Soft margarine, which is less hydrogenated, is available in 1/2 pound, 1 pound, and 5 pound tubs. Liquid margarine, which is even less hydrogenated, is available in 1/2 pound and 1 pound plastic squeeze bottles and in 5 pound plastic bottles. .... are made from refined vegetable oils or a combination of animal fats and vegetable oils.

****

margarines

10 CHEESE

Cheese comes in many forms and in a wide variety of flavors and textures. Natural cheese is made from cow, sheep, or goat milk or cream and is usually cured or aged for a specific period to develop flavor. It is prepared by coagulating milk and separating the curd or solid portion from the whey or watery portion. Cheeses must contain a minimum of 50% milk fat and a maximum of 39% moisture. They may be classified by texture or consistency and the degree or kind of ripening. Ripening is the change over time in physical and chemical properties such as aroma, flavor, texture, and composition. Cheese can be very hard, hard, semisoft to hard, semisoft, and soft. It can be ripened with mold or bacteria. .... comes in many forms and in a wide variety of flavors and textures.

****

cheese

Very hard cheeses include Parmesan and Romano. Both are bacteria ripened and are usually available in the grated form but can also be purchased in cuts from specialty import shops. Both are light yellow in color and have a sharp, distinctive flavor. They are available in retail packages and 5 pound containers. Very hard cheeses include .... and Romano.

****

Parmesan

Hard cheeses include Cheddar and Swiss, the two most popular varieties in the United States. Both are bacteria ripened. Cheddar cheese is the only variety that is graded. The USDA grades are based on taste, texture, and appearance. The grades most often sold are US Grade AA and US Grade A. Grades B and C contain possible defects. Cheddar ranges in color from pale yellow to orange and in flavor from mild to very sharp. The length of storage (ripening) time influences the flavor. The longer the curing period, the sharper, fuller, and richer the flavor. The cost generally increases with the aging period. Cheddar is available in a variety of shapes and sizes. The long cylinders, called longhorns, are 12 to 13 pounds. Bricks, either square or oblong, are usually 5 to 10 pounds but are available in the larger blocks from which the bricks are cut. The bricks may be sliced. Large rounds range in size up to 60 pounds. Hard cheeses include .... and Swiss.

****

Cheddar

Swiss cheese is light in color and has characteristic holes caused by gas bubbles formed during ripening. It originated in Switzerland but is now available either imported or domestic. It is available in loaf, wheel, or cut form or shredded. The loaves are usually recut to 5 pound sizes. After cutting, the edges will dry rapidly if not securely wrapped in airtight wrap. .... cheese is light in color and has characteristic holes.

****

Swiss

Semisoft to hard cheeses include Edam, Colby, and Gouda. All are bacteria ripened. Edam is a Dutch pressed cheese that is deep yellow in color, made in flattened balls, and covered with red wax. Colby, like Edam and Gouda, is mild flavored. It is a flattened round. Gouda is a flattened round and is higher in fat. Semisoft to hard cheeses include ...., Colby, and Gouda.

****

Edam

Semisoft cheeses include blue and Roquefort, which are mold ripened, and brick and Muenster, which are bacteria ripened. Blue cheese gets its name from the color of the mold that gives it the tangy, peppy flavor. Imported brands are often spelled "bleu," the French word for blue. Roquefort is an imported cheese made in France. According to the laws and regulations of France, the term Roquefort can apply only to this blue-mold cheese made from sheep milk in the immediate vicinity of Aveyron in southeastern France. Similar types of imported blue-mold cheese made from cow milk are bleu from France, Gorgonzola from Italy, Stilton from England, and Danish blue from Denmark. Brick is pale yellow and ranges from mild to sharp. It is available in blocks the size and shape of a brick and sliced. Muenster is a medium yellow, mild and creamy cheese of German origin. It is available in a loaf or sliced. Semisoft cheeses include blue, ..., brick, and ....

****

Roquefort • Muenster

Soft cheeses include Brie and Camembert, which are mold ripened; Limburger, which is bacteria ripened; and cottage cheese, cream cheese, and Neufchatel, which are unripened. Brie has a creamy yellow interior and is encased in a thin whitish, edible crust. It has a mild to pungent flavor. Camembert has a creamy yellow almost liquid interior in a thin, grayish, edible crust. It has a piquant flavor and, like Brie, is of French origin. Limburger originated in Belgium. It is light yellow, semisoft, and has a pungent flavor. It is available in pieces or as a spread. Cottage cheese, also called pot cheese and schmierkase, has a mild, slightly acidic flavor. Ricotta is similar to cottage cheese but is of Italian origin and is smoother. Cottage cheese comes in large or small curd; plain; creamed or dry; with or without salt; and with fruit, chives, onions, or vegetables added. It is available in retail packages of 5 and 8 ounces, and in 5 or 10 pound plastic cartons or 25 pound pails. Cream cheese is a very pale yellow, soft cheese that deteriorates rapidly. It is smooth and buttery with a mild, slightly acidic flavor. It is available in foil-wrapped packages of retail size and 2 and 5 pound packages as well as jars or foil dishes of plain cheese or cheese mixed with seasonings for use as a dip. Neufchatel is the same as cream cheese except it is lower in fat and has more moisture. Soft cheeses include ....,

.... Limburger, cottage cheese, ..., and Neufchatel.

****
Brie • Camembert • cream cheese

Cheese blends include process cheese, cheese food, cheese spread, and cold-pack cheese. Process cheese products are not USDA graded but are often made under USDA supervision and may be marked with the "USDA Quality Approved" shield. Process cheese is a mixture of several natural cheeses that have been shredded and pasteurized to stop the curing at the desired stage. Flavoring materials such as pimiento, fruit, or nuts may be added. It may be stored for a longer time than most cheese because it is poured into sanitary airtight plastic loaf packages, each weighing 5 or 10 pounds. It is less expensive than most varieties of natural cheese and has the advantage of having no waste because there is no rind. Because of the added moisture and the emulsification of the fat, it melts easily and blends easily into a sauce. .... is a mixture of several natural cheeses that have been shredded and pasteurized.

****
process cheese

Cheese food is a product made from a mixture of one or more varieties of cheese with milk solids, salt, and up to 3% emulsifier. The moisture content is higher than that allowed for process cheese, and the butterfat content is lower. .... is a mixture of cheese, milk solids, salt, and emulsifiers.

****
cheese food

Cheese spreads are similar to cheese food except that a stabilizer is used. The moisture content is higher and the butterfat content is lower. Spreads may be flavored with pimiento, olives, onions, pickles, or other added ingre-

dients. ....
are similar to cheese food except that a stabilizer is used.

****
cheese spreads

Cold-pack cheese or club cheese is a blend of one or more varieties of natural cheese prepared without heat and with no emulsifier. Spices or smoke flavoring may be added. It is softer in texture than natural cheese and will spread more readily. Cold-pack cheese or .... is a blend of natural cheese prepared without heat or an emulsifier.

****
club cheese

Low-sodium cheese is available but may be less desirable because of the poor flavor, the rubbery texture, and the short storage time. It is available in retail packages and 5 pound blocks. .... may be less desirable than regular cheese.

****
low sodium cheese

Imitation cheese is similar to its natural counterpart in appearance. It is made of soybeans and contains no milk solids. It is lower in cholesterol and melts readily. In many states it may be served only if notice of its use is posted on the wall or included on the menu. .... is made of soybeans and contains no milk solids.

****
imitation cheese

11 FRESH FRUITS

There are many types of varieties of fresh fruits available to add interest to the menu and choices to purchasing. Modern storage techniques make most available the year around, but most are more plentiful during their harvest seasons. Transportation and storage costs may make them too expensive for regular use when out of season. Other fruits, such as berries, are very perishable and cannot be stored for long periods. There are many types and varieties of ....
available to add interest to the menu and choices to purchasing.

****

fresh fruit

Ripening changes are brought about by enzymes in the fruit, and they continue after the fruit is gathered. Ripening causes fruit to increase in size; tissues to soften; color to change; carbohydrates to change in kind and amount; flavor to change from acid, bitter, or astringent to mild, sweet, or bland; and typical aroma to develop. Ripening changes are brought about by
.... in the fruit.

****

enzymes

Apples are graded Extra Fancy, Fancy, Combination, No. 1, and Utility. They are harvested in the late summer and fall but are marketed the year around. Red Delicious is the most popular apple available. The 12 principal varieties, which along with the Red Delicious make up 85% of the apple production, are: Cortland, Golden Delicious, Granny Smith, Gravenstein, Jonathan, McIntosh, Newton Pippin, Northern Spy, Rome, Stayman,

Winesap and York. The most popular apple variety available is
....

****
Red Delicious

Apples are packed in 38 to 42 pound cartons, if loose, and 40 to 45 pound cartons, if placed in trays. They are waxed to improve appearance and retard shriveling and dehydration. The wax is easily removed when the fruit is washed before preparation. They should be ordered by count, which means the number of apples per case. The count ranges from 48, which is a very large apple, to 198, which is very small. Apples are harvested in the late .... and ....
but are marketed the year around.

****
summer • fall

Apricots are graded No. 1 and No. 2. They are marketed from June through September but are most plentiful in June and July. The three principal varieties are Royal, Tilton, and Moorpak. King, Derby, Perfection, and Blenheim are also popular. Golden yellow color, plumpness, and firmness are an indication of quality and ripeness. Apricots are packed in cartons of 12 pounds, Brentwood lugs of 24 pounds, LA lugs of 24 to 28 pounds, and Sanger lugs of 24 to 26 pounds. Size is indicated by pieces of fruit in each row. Apricots are an excellent source of vitamin A. ....
are an excellent source of vitamin A.

****
apricots

Avocados are graded No. 1, Combination, No. 2, and No. 3. They are marketed the year around, with peak seasons from October through December and from February through April. They are available during the summer months, but the supply is low and the price is high. They should be held at room temperature until they yield to the touch. The principal varieties used in the United States in order of volume produced are Hass, Fuerte, Bacon, Zutano, Rincon, MacArthur, Nabalm, Anaheim, and Reed from California and Booth, Lula, and Walden from Florida. Hass, which is ovoid, and Rincon and MacArthur, which are pear shaped, make up the major spring and summer supply. Fuerte, Bacon, and Zutano, all pear shaped, make up the major fall and winter crop. Avocados are packed in flats of 13 to 16 pounds with one layer or 22 to 25 pounds with two layers. Sizes range from 8 to 30 per layer. Very large fruit are sometimes packed in bruce boxes that are 32 pounds. Avocados are the only fruit that is high enough in fat to be an important source of energy. They are an excellent source of potassium and a fair source of vitamins A and C. Avocados are an excellent source of

....

****

potassium

Bananas are graded No. 1 and No. 2. They are marketed all year, since most are imported from Central America. The principal variety is Cavendish. Bananas are usually ordered as green, to be ripened after delivery as needed, or greentip to be used immediately. Banana skins turn brown when they are refrigerated. Bananas are purchased according to size: large, medium, small, and petite. They are packed in 40 pound cartons. Most distributors will break a carton and sell 10 pound lots. Bananas contain more than 20% solids and are therefore comparatively high in calorie content. They are a good source of potassium. Most bananas are imported from

....

****

Central America

Blackberries (dewberries) are graded No. 1, No. 2, and Select. They are marketed from May through Septemer. They are packed in 24 quart crates with a weight of 36 pounds. They are a good source of vitamin C. Boysenberries, logan berries, and Ollalie berries are also varieties of dewberries. Blackberries are marketed from .... through

....

****

May • September

Blueberries are graded No. 1 and No. 2. The principal varieties are Bluecrop, Jersey, Rubel, and Weymouth. They are marketed from May to October and are packed in 12 pint trays weighing 11 pounds or in 24 quart crates weighing 36 pounds. Blueberries are a fair source of vitamins A and C. Blueberries are marketed from May through ....

****

October

Cantaloupe or muskmelons are graded Fancy, No. 1, and Commercial. They are marketed every month of the year. They are packed in ½ crate cartons with counts of 12 to 23 weighing 38 to 41 pounds, ⅔ crate cartons with counts of 12 to 30 weighing 53 to 55 pounds, and standard or jumbo crates with counts of 18 to 46 weighing 75 to 85 pounds. Cantaloupe are ripe and ready to use when they have a full slip (complete separation of stem from melon) and a fragrant aroma. They are good sources of vitamins A and C and potassium. Cantaloupe are marketed every ....
of the year.

****

month

Cherries are graded No. 1 and Commercial. The principal dark sweet varieties are Bing, Lambert, and Van. They are large, round, and plump. They are grown in the Pacific Northwest and are excellent shippers. Royal Anne and Rainier (Golden Bing) are light sweet cherries. They are large and bruise easily during shipping. They are grown in the East and Midwest. Tart red varieties (pie cherries) are seldom eaten fresh. The marketing season is from May to July. Cherries are packed in 12 pound flats or 20 pound lugs and cartons with varying counts. They are a fair source of vitamin C. Cherries may be dark sweet, ...
.........................., or tart red.

****

light sweet

Cranberries sold fresh are all graded No. 1. All other grades go to the processor. The principal varieties are Early Black, Howes, Searles, and McFarlin. The crop is harvested in the fall, and at that time cranberries are available raw. Most of the crop is canned as jelly or sauce. Fresh cranberries are packed in cartons of 24 1 pound bags or in 25 pound cartons. They are a fair source of vitamin C. Most of the cranberry crop is canned as .... or ....

****

jelly • *sauce*

Grapefruit are graded Fancy, No. 1, Combination, No. 2, and No. 3. The two principal white varieties are Duncan, with seeds, and March, which is seedless. The two pink varieties with seeds are Foster and Thompson. The three pink seedless varieties are Ruby Red, Marsh Pink, and Star Ruby. The seedless varieties are more expensive than the seeded ones, and the pink or ruby costs more than the white. Good, juicy fruit will be heavy, firm, and smooth textured. It may range in skin color from pale yellow to russet or bronze. Color does not indicate ripeness. Grapefruit are marketed all year. They are packed from September to June in Florida in 4/5 bushel cartons weighing 45 pounds with counts of 23 to 48 or in 38 to 42 pound cartons with counts of 23 to 64. Texas packs from September to June in 38 to 42 pound 7/10 bushel cartons with counts of 18 to 56 or 1 2/5 bushel cartons weighing 76 to 84 pounds with counts of 46 to 112. Both California and Arizona pack from January to June in 38 to 42 pound cartons with counts of 23 to 64. Grapefruit are an excellent source of vitamin C. Grapefruit that are pink or .... cost more than the ....

****

ruby • *white*

Grapes are divided into five groups: table, raisin, wine, juice, and canning. Table grapes are those intended for use as fresh fruit. They are graded Fancy, Extra No. 1, and No. 1. Characteristic color is a good sign of ripeness. Ripe grapes will also be fairly soft to the touch and tender to the taste. They do not ripen after they are picked. The principal varieties of the European species grown mainly in California are Emperor, Perlettes, Cardinals, Ribers, Thompson, Flame Tokay, and Red and White Malaga. They are marketed every month except May. The domestic types grown mainly in eastern states are available in the fall. They include Concord, Catawba, Niagra, and Delaware. They are packed in 17 to 23 pound lugs, flats, or cartons with varying counts. Many varieties of grapes are relatively high in calories because they are a more concentrated source of carbohydrate, but they are not an important source of other nutrients. Table grapes are those intended for use as ....

****
fresh fruit

Lemons are graded No. 1, Combination, and No. 2. They are grown chiefly in California and Florida and are marketed the year around. They may be waxed to reduce shriveling. Lemons are packed in 37 to 40 pound cartons with counts of 63 to 235. They are an excellent source of vitamin C. Lemons may be .... to reduce shriveling.

****
waxed

Limes are graded No. 1, Combination, and No. 2. The main variety from Florida is Persian and from California, Bearss. They are marketed the year around. Packing is done in 10 pound flats or cartons with counts of 36 to 63, in 20 pound cartons or flats with counts of 72 to 126, or in 38 pound cartons or bruce boxes with counts of 110 to 250. They are an excellent source of vitamin C. Limes are grown in .... and ....

****
Florida • California

Mandarin oranges are zipper-skin citrus. There are three classifications: satsumas are medium to small seedless fruit from Japan; tangerines are small, deep orange, rich-flavored fruit with seeds; and miscellaneous hybrids include Tangelos, Tangors, and complex hybrids. Tangelos are a grapefruit-tangerine cross. The principal varieties are Orlando and Minneola.

Tangor varieties are Murcott (Honey Tangerine) or Temple, which are rich-flavored fruit from Florida. Mandarins are marketed from October through May. Florida packs them in 4/5 bushel crates or cartons, with counts of 176 and 210 being most popular. California packs by size according to word descriptions ranging from small to super colossal. They are an excellent source of vitamin C. Mandarin oranges are .... citrus.

****

zipper-skin

Melons other than cantaloupe and watermelon are graded No. 1, Commercial, and No. 2. The principal varieties are Honeydew, Honeyball, Casaba, Crenshaw, Persian, and Santa Claus. They are marketed from May to January. Packing is done in cartons weighing 26 to 27 pounds with counts of 6, 7, or 8 in 29 to 30 pound cartons with counts of 4, 5, or 6. Melon varieties are ...., Casaba, Crenshaw, ..., and Santa Claus.

****

Honeydew • Persian

Nectarines are graded Extra No. 1 and No. 1. There are numerous varieties ripening at various times, making them available from late May to September. They are packed in 19 to 23 pound lugs or cartons with counts of 32 to 96, 25 pound lugs or cartons that are volume fill, and 35 pound cartons with varying counts. They are a good source of vitamin A and a fair source of vitamin C. Nectarines are a good source of ....

****

vitamin A

Oranges are graded Fancy, No. 1, Combination, No. 2, and No. 3. The principal varieties are Valencia, Navel, Hamlin, Parson Brown, and Pineapple. They are produced in California, Texas, Florida, and Arizona. There is year-round marketing. They are packed in 4/5 bushel cartons weighing 37 to

45 pounds with counts of 64 to 125 when shipped from California and Florida. Navels are shipped in the same size carton with counts of 32 to 56 from Florida, and Texas packs 38 to 44 pound cartons with counts of 56 to 144 and 82 to 87 pound cartons with counts of 100 to 288. Oranges are an excellent source of vitamin C. .... are produced in California, Texas, Florida, and Arizona.

****

oranges

Peaches are graded Extra No. 1 and No. 1. The early type is clingstone in which the flesh is firmly attached to the pit; the later type is freestone in which the flesh separates easily from the pit. The principal varieties are Elberta and Red Haven. New varieties are being developed each year. Both white- and yellow-fleshed peaches are available and both are very flavorful. The marketing season is from May to November. The fruit is packed in 30 pound cartons or lugs with counts of 32 to 96, 17 to 18 pound boxes with counts of 35 to 70, and 30 and 38 pound cartons with varying counts. Peaches do not ripen after picking, so they must be mature at the time of purchase. They are a fair source of both vitamin A and C. The two types of peaches are .... and ....

****

clingstone • *freestone*

Pears are graded No. 1, Combination, and No. 2. The principal varieties are Bartlett, Anjou, Bosc, and Comice. Each variety has a season of about three months, and because of the overlapping seasons pears are marketed every month except June and July. They are packed in 22 to 24 pound lugs or cartons and 36 pound cartons with varying counts or in 44 to 46 pound standard cartons with counts of 80 to 188. They are picked and packed green and have a better texture and flavor when they ripen off the tree. The principal varieties of pears are ...., ..., Bosc, and Comice.

****

Barlett • *Anjou*

Pineapples are graded Fancy, No. 1, and No. 2. The principal variety is Smooth Cayenne. They are marketed the year around with the peak period between April and June. Pineapple is packed in 20 pound cartons with counts of 4 to 7 or in 40 pound cartons with counts of 8 to 18. They are a good source of vitamin C. Pineapples are marketed the ....

****
year around

Plums are graded No. 1. Most of them are grown in California. The two main types are Japanese, which are juicy, a variety of shapes, but never blue or purple and European, which are smaller, oval, and always blue or purple. There are more than 2000 varieties. Some of the more popular are Simka, Laroda, Cassleman, Red Beaut, Friar, Nudiana, and President. The marketing season is from July to December. Plums are packed in 28 pound cartons or lugs with counts of 144 to 225, 18 pound lugs or cartons with counts of 60 to 118, or 22 to 38 pound crates with counts of 132 to 280. They are a fair source of thiamine. Plums are marketed from .... to ....

****
July • December

Prunes are not graded. They are a variety of plum. The main variety is Italian, grown in the Pacific Northwest. They are available fresh in late summer, packed in 28 pound ring-faced baskets. They are available dried the year around and are packed in 25 and 30 pound boxes either pitted or unpitted. They are valued in the diet for their laxative property and vitamin A and iron content. Prunes are a variety of ....

****
plum

Raisins are graded A, B, and C. The principal varieties of grapes used for raisins are Natural Seedless, Golden Seedless, and Seeded Muscats. They are marketed the year around. Raisins are packed in 10, 25, 30, and 40 pound containers, with or without polybag liners. The grades of .... are A, B, and C.

****
raisins

Raspberries, both red and black, are graded No. 1. They are shipped from California from April to November, with peak production in June and July. They are packed in ½ pint containers with 12 containers per flat and 3 flats per bundle. Red raspberries are a fair source of vitamin A, and both kinds are fair sources of vitamin C. Raspberries are shipped from ....

****
California

Strawberries are graded No. 1, Combination, and No. 2. They are marketed all year with peak production from April to July. They are packed in 12 pint trays weighing 12 pounds with varying counts. They are a good source of vitamin C and a fair source of potassium. Peak strawberry production is from .... to ....

****
April • July

Tomatoes are fruit botanically, but the Supreme Court decreed in 1893 that they are vegetables, at least for purposes of trade. (See Ch. 13 for information on tomatoes.) Tomatoes are .... for the purpose of trade.

****
vegetables

Watermelon is graded No. 1, Commercial, and No. 2. The principal varieties are Charleston Grey, Jubilee, Peacock, and Black Diamond. They are marketed from mid-April to December. Watermelon may be purchased individually or in 70 to 87 pound cartons with a count of 3, 4, or 5. They are a fair source of vitamin A. . . . . is marketed from mid-April to December.

****
watermelon

Other less well known fruits that might be used in some food service operations are:

apple-pear
breadfruit
carambola
cherimoya
coconut
crabapple
currant
dates
elderberry
figs
gooseberry
granadilla
guava
kiwi fruit
kumquat
loquat
lychee
mango
mangosteen
oriental pear
papaya
papaw
passion fruit
persimmon
plantain
plumcot
pomegranate
prickly pear
quince
rhubarb
sapote
star apple
tamarind
ugli fruit

Other less well known . . . . may be used in food service operations.

****
fruits

12 CANNED, FROZEN, AND DRIED FRUITS

Fruits are canned, frozen, and dried so that particular items available in the fresh form only during a short growing season may be enjoyed all year. Processing usually changes the structure of the food, reduces the cost, eliminates waste, reduces or eliminates preparation, and extends the storage life. Fruits may be packed separately or in combinations. They may be processed as whole fruits or in halves, slices, sauce, or juice. Fruits are canned, frozen, and dried so they may be enjoyed all ....

****

year

The most important factor in considering canned fruit is the grade. The grades are expressed by the letters A, B, and C or Fancy, Choice, and Standard for most fruits. The following factors are taken into consideration when grading canned fruit: color and uniformity of color, uniformity of size and shape, absence of defects such as frost or insect damage and bruises, flavor, character (texture, firmness, etc.), Brix range of the syrup, and drained weight. The USDA has set up point scales on which the relative merits of fruits are based. Assignments of points for various qualities differ with the variety to be graded, but Fancy must have a total of 90 points out of 100, Choice 75 to 89 points, and Standard 60 to 74 points. If there is no B grade, the points for A are 85 or more and for C, 70 to 84. Grades are expressed by the letters ...., ..., and .... or Fancy, Choice, and Standard.

****

A • B • C

Containers may be described either by a size number or the weight of the contents. Cans are made of steel that has been coated inside and out with tin. The inside may be plain or enamel lined. Form A at the end of the chapter shows common can sizes, capacities, and uses. Frozen fruits may be in cans; waxed or polycoated paperboard containers; or polyethylene, foil, or laminated bags or envelopes. They may be in bulk pack or individually quick frozen. Dried fruits are usually packed in polyethylene bags or foil pouches. Containers may be described either by a .... number or the .... of the contents.

****
size • *weight*

The sizes of fruit are designated by the numerical count according to the size of the can. Usually, the larger the fruit size, the lower the count. Traditionally, the syrup density is according to the grade, so the greatest amount of sugar is used for the best grades. Cost and a trend toward less sugar in the diet is leading to use of a lighter syrup or fruit packed in juice alone. Plain water with artificial sweetener is the medium for dietetic fruits. Drained weight, the weight of the fruit after the liquid has been removed, is included in the federal standards. The sizes of fruit are designated by the numerical .... according to the size of the can.

****
count

The price is affected not only by the grade but also by the treatment of the product within the can. Purchasing decisions should be based on intended use. Cut or broken pieces may be used in some products without adversely affecting the finished item and at a lower cost than if perfect pieces were used. Purchasing decisions should be based on the intended ....

****
use

Fruits that have been processed to remove moisture may be categorized according to the method. Dried fruits are called regular if 18 to 25% of the original moisture remains and are low moisture if only 2½ to 5% moisture remains. Dehydrated foods have had even more moisture removed. Freeze-dried foods are first frozen and then dried in a partial vacuum. They have very little color and texture change and may be stored at room temperature but are quite expensive. Dehydro-frozen foods are first dehydrated and then frozen, which reduces bulk, but they must be refrigerated. Irradiated foods are preserved by sterilization with radiation. This causes little change in product quality, and they may be stored without refrigeration. Fruits that have been processed to remove .... may be categorized according to the method.

****

moisture

Canned, frozen, and dried fruits are available in a variety of sizes, containers, and processes. Form B lists some products and the most common preparation and container sizes. Many other products and combinations may be available in particular regions of the country. Canned, frozen, and dried fruits are available in a variety of sizes, containers, and ....

****

processes

FORM A

CAN SIZES

Can name	Dimensions		Capacity (approx.)	Use	No./case
	Width	Height			
6 oz	2⅛	3½	¾ C	Frozen juice concentrates, fruit, vegetables, specialty items	24 or 48
8 oz	2¹¹⁄₁₆	3	1 C	Fruits, vegetables, specialty items	24 or 48
No. 1 picnic	2¹¹⁄₁₆	4	1¼ C	Condensed soup, fruit, vegetables, meat, fish products	48
12 oz	2¹¹⁄₁₆	4¾	1½ C	Frozen juice concentrates, fruit, vegetables, specialty items	24
No. 300	3	4⁷⁄₁₆	1¾ C	Cranberry sauce, spaghetti, chili beans with pork, nut bread	24
No. 303	3³⁄₁₆	4⅜	2 C	Fruits, vegetables	12 or 24
No. 2	3⁷⁄₁₆	4⁶⁄₁₆	2½ C	Fruits, vegetables, juices	12 or 24
No. 2½	4¹⁄₁₆	4¹¹⁄₁₆	3½ C	Fruits, vegetables	12 or 24
No. 3 cylinder	5⅛	5⅝	5¾ C (46 oz)	Juices, chicken, soup, grapefruit sections	12
No. 10	6³⁄₁₆	7	3 qt	Fruits, vegetables	6

FORM B

Product	Can size							Liquid				Frozen packages					Available dried	
	Gal	No. 10	No. 5	No. 3 cyl	No. 2½	No. 2	Retail	Heavy syrup	Light syrup	Water pack	Natural juice	30 lb	25 lb	20 lb	6/case	12/case	Yes	No
Apples																		
Baked		X						X										X
Sauce		X							X									X
Sauce, chunky		X					X	X										X
Sauce, dietetic		X								X								X
Sauce, rosy		X					X	X				X						X
Slices		X					X	X									X	
Spiced, rings		X					X		X									X
Spiced, whole		X					X		X									X
Pie pack		X					X			X								X
Apricots																		
Halves, peeled		X					X	X										X
Halves, peeled, dietetic		X					X			X								X
Halves, unpeeled		X			X			X									X	
Halves, unpeeled, dietetic		X					X			X								X
Slices		X					X	X										X
Whole, peeled		X					X	X										X
Whole, spiced		X					X		X									X
Solid pie pack		X			X					X								X
Banana																		
Flakes		X																X
Slices		X					X		X									X
Blackberries		X						X	X							X		X
Blueberries		X					X		X	X	X	X				X		X
Cherries																		
Dark sweet, pitted		X			X		X	X	X			X				X		X
Dark sweet, pitted, dietetic		X					X			X								X
Dark sweet, unpitted		X			X		X	X	X									X
Dark sweet, unpitted, dietetic		X					X			X								X
Maraschino	X								X									X

FORM B (*cont.*)

Product	Can size							Liquid				Frozen packages					Available dried	
	Gal	No. 10	No. 5	No. 3 cyl	No. 2½	No. 2	Retail	Heavy syrup	Light syrup	Water pack	Natural juice	30 lb	25 lb	20 lb	6/case	12/case	Yes	No
Cherries (*cont.*)																		
Maraschino, with stems	X								X									X
Red sour, pitted		X								X		X				X		X
Royal Anne, pitted		X					X	X	X	X	X							X
Royal Anne, pitted, dietetic		X					X			X								X
Royal Anne, unpitted		X					X	X	X	X	X							X
Royal Anne, unpitted, dietetic		X					X			X								X
Cranberries																		
Strained, jellied		X					X		X									X
Strained, jellied, dietetic		X					X			X								X
Whole, jellied		X					X		X									X
Dates																		
Nuggets																	X	
Whole, pitted																	X	
Whole, unpitted																	X	
Figs, Kadota		X			X			X										X
Fruit combinations																		
Fruit cocktail		X			X		X	X	X	X	X							X
Fruit cocktail, dietetic		X					X			X								X
Fruit mix, diced		X			X		X	X	X	X	X			X				X
Fruit mix, tidbits		X			X		X	X	X	X	X							X
Fruits for salad		X					X	X	X	X	X			X				X
Fruits for salad, dietetic		X					X			X								X
Gooseberries		X						X	X									X
Grapefruit sections				X			X		X	X	X			X				X
Grapes																		
Maraschino	X	X							X									X
Thompson seedless		X					X		X		X							X
Melon chunks															X	X		X

Product	Can size							Liquid				Frozen packages					Available dried	
	Gal	No. 10	No. 5	No. 3 cyl	No. 2½	No. 2	Retail	Heavy syrup	Light syrup	Water pack	Natural juice	30 lb	25 lb	20 lb	6/case	12/case	Yes	No
Olives																		
Green	X						X			X								X
Ripe		X					X			X								X
Stuffed	X						X			X								X
Oranges																		
Mandarin		X					X			X								X
Mandarin, broken segments		X					X			X								X
Whole segments		X									X							X
Peaches																		
Cling, chunks		X						X	X	X	X							X
Cling, diced		X						X	X	X	X							X
Cling, halves		X						X	X	X	X							X
Cling, halves, dietetic		X					X			X								X
Cling, slices		X			X		X	X	X	X	X	X			X	X		X
Cling, slices, dietetic		X					X			X								X
Freestone, halves		X			X				X	X	X							X
Freestone, slices		X			X		X		X	X	X							X
Solid pie pack		X								X								X
Spiced		X							X									X
Peach/pear mix		X						X	X									X
Pears																		
Cinnamon, halves		X							X									X
Diced		X					X	X	X									X
Diced, dietetic		X					X			X								X
Halves		X			X			X	X	X	X							X
Halves, dietetic		X					X			X								X
Slices		X			X		X	X	X	X	X				X			X
Slices, dietetic		X					X			X								X

FORM B (cont.)

Product	Can size							Liquid				Frozen packages					Available dried	
	Gal	No. 10	No. 5	No. 3 cyl	No. 2½	No. 2	Retail	Heavy syrup	Light syrup	Water pack	Natural juice	30 lb	25 lb	20 lb	6/case	12/case	Yes	No
Pineapple																		
Chunks		X			X		X	X	X	X	X				X			X
Chunks, dietetic		X					X			X	X							X
Crushed		X					X	X	X	X	X				X			X
Crushed, dietetic		X					X			X	X							X
Slices		X					X	X	X	X	X							X
Slices, dietetic		X					X			X	X							X
Tidbits		X					X	X	X	X	X							X
Plums																		
Green Gage, whole		X						X	X									X
Purple, halves		X			X			X	X									X
Purple, halves, dietetic		X					X			X								X
Purple, whole		X					X	X	X	X	X							X
Prunes																		
Nectarized		X							X		X						X	
Nectarized, pitted		X							X		X						X	
Whole		X							X		X						X	
Whole, pitted		X							X		X						X	
Raisins																		
Seeded																	X	
Seedless																	X	
Raspberries																		
Black		X					X		X			X				X		X
Red		X					X		X			X				X		X
Rhubarb												X						X
Strawberries			X				X		X			X				X		X
Watermelon pickles	X						X		X									X

13 FRESH VEGETABLES

There is a multitude of fresh vegetables available to add calories, texture, color, and variety to the menu. This same wide array of choices adds challenges to the purchasing function. Modern storage and transportation make many vegetables available all year to most of the country. Some more seasonal vegetables are being grown under controlled conditions (hydroponic tomatoes, for example) but may be more expensive than those grown in a natural environment. There is a multitude of .... available to add calories, texture, color, and variety to the menu.

****
fresh vegetables

Vegetables are divided into categories according to the part of the plant. Tubers, seeds, and roots have been adapted by the plant as storage portions, are high in carbohydrates, and are important sources of energy in the diet. The actively growing portions (shoots, leaves, flowers, and fruits) are high in water content and are primarily useful as sources of minerals and vitamins. Green or succulent vegetables are highest in quality and nutritive value immediately after they are gathered. The maturing of vegetables, like the ripening of fruit, is brought about by enzymes and their action continues after the vegetable is gathered. Vegetables dry out easily and wilt quickly after they have been picked. This is especially true of tender ones with high water content and without a protective peel or skin. Enzymatic changes and water loss are most rapid in leaves and growing portions. Most serious is the effect of enzymes on loss of vitamin content. The roots, tubers, and bulbs are the most stable. Adaptability of the vegetable to storage, available storage space, nutritional needs, and the number to be served determine the quantity to be purchased. The maturing of vegetables is brought about by .... and the action continues after they are gathered.

* *

enzymes

Artichokes are graded No. 1 and No. 2. The main variety is Globe. They are available every month except September. Accept plump globular ones that are compact with fresh, thick, green scales. Avoid those with mold, discoloration, or worm injury. Artichokes are packed in 20 to 25 pound cartons with counts of 18 to 60. Small loose counts are also available. They are a good source of calcium. Jerusalem and Chinese artichokes are tubers and very different from the unopened flower bud of the thistlelike plant of the commonly known artichoke. The main variety of artichoke is ....

* *

Globe

Asparagus is graded No. 1 and No. 2 and is marketed between February and July, with the most plentiful supply between April and June. The two general types are green and white. Asparagus is packed in 15 pound crates, 24 to 25 pound cartons, 32 pound pyramid crates, and 32 pound loose packs. Look for closed compact tips, smooth round spears, and a fresh appearance. Stalks should be tender and green. Avoid open, moldy, or decayed tips or ribbed spears. Asparagus is good source of vitamin C and a fair source of vitamin A. Asparagus is most plentiful between ....
and ....

* *

April • June

Beans may be either bush or pole (vining) and are graded Fancy, No. 1, Combination, and No. 2. Bush beans may be either green or waxy yellow (wax bean). The principal variety of pole bean is Kentucky Wonder. Beans are marketed the year around in 26 to 31 pound hampers with varying counts. Kidney beans are the mature seed of green beans. Lima beans are available the year around, the peak period being from June through September. The smaller sizes are called butter limas and the larger ones are potato limas. They are packed in 10 and 20 pound cartons. Garbanzo beans are also known as chick peas. Beans should have a fresh, bright appearance with good color for the variety. Avoid wilted, flabby pods and decay. Green beans are a fair source of vitamin A. Garbanzo beans are a good source of incomplete protein. Bush beans may be either .... or

....

****
green • waxy yellow

Beets are graded No. 1 and No. 2. They are shipped mainly from California, New Jersey, Ohio, and Texas the year around, with the peak season being from June to October. If they are not stored, they may be shipped with tops on, or young tender tops may be cut, bunched, and sold as salad or cooking greens. Accept those that are a rich, deep red color and firm, round, and smooth. Avoid those that are wilted and flabby. Beets are packed in bags of either 25 or 50 pound capacity. They are also available in 43 to 47 pound cartons with a count of 24 bunches (3 to 5 beets per bunch). Beets are a fair source of vitamin C and iron. Beet greens are an excellent source of vitamin A and a good source of both vitamin C and iron. Beet greens are an excellent source of ....

****
vitamin A

Broccoli is graded Fancy, No. 1, and No. 2. The two types are Italian and California. Broccoli is a member of the cabbage family. It is marketed the year around, the peak season being from October to April. Broccoli is packed in 20 to 23 pound cartons with counts of 14 to 18 bunches. Accept firm compact clusters of buds of dark green or sage green color. Yellow buds and stem and woodiness occur as the broccoli ages. It is an excellent source of vitamins A and C and a fair source of riboflavin, calcium, and iron.

The two types of broccoli are .... and ....

****
Italian • California

Brussels sprouts are graded No. 1 and No. 2. They are grown mainly in California and are marketed from August to May, with peak supplies from October through December. They are packed in 12 pint trays weighing 9 pounds per carton and in 25 pound cartons with varying counts. Good sprouts are firm, green, and compact and look like little cabbages. Wilted or puffy appearance is an indication of poor quality. Loose, soft, or yellow leaves indicate aging. Brussels sprouts are an excellent source of vitamin C and a fair source of iron and vitamin B_1. Brussels sprouts look like ....

****
little cabbages

Cabbage is graded No. 1 and Commercial. The principal varieties are Domestic, Danish, Pointed, Red, and Savoy. Red is identical to the other varieties except in color. Savoy has yellowish, crimped leaves that form a loose head similar to Iceberg lettuce. A novel type is celery cabbage or Chinese cabbage, which has characteristics of both Romaine and cabbage with a long oval head. Other members of the cabbage family are brussels sprouts, collards, cauliflower, kale, and kohlrabi. Look for firm, heavy, fresh heads free from blemish. Avoid wilted, dried, or decayed outer leaves. Early and new cabbage is not as firm as fall and winter strains. Cabbage is marketed the year around. It is packed in 40 pound cartons, and 50 to 60 pound cartons and bags with varying counts. Some suppliers will sell broken crates by the pound. Cabbage is a good source of vitamin C. It is also available shredded, alone or in combination with other vegetables, in 5 and 10 pound cello bags. Cabbage is marketed the ....

****
year around

Carrots are graded Extra No. 1, No. 1, Jumbo, and No. 2. They are marketed the year around. The main sources are California, Texas, and Michigan. They should be firm, well formed, smooth, and orange in color. Wilted, flabby, shriveled, or sunburned ones should not be accepted. Carrots are packed in cartons containing 48 1 pound bags, 24 2 pound bags, 18 3 pound bags, and bags weighting 25 and 50 pounds. They are an excellent source of carotene, a precursor of vitamin A. Carrots are an excellent source of ....

****

vitamin A

Cauliflower is graded No. 1. It is a member of the cabbage family and is marketed the year around, with peak supply September through November. The size of head does not affect quality. It should be white to creamy white, firm, and compact. Do not accept cauliflower that has insect injury, mold, dark spots, a ricy appearance, or a yellow-green tint. Packing is done in 16 to 23 pound cartons, cello-wrapped, with counts of 9, 12, or 16. It is a good source of vitamin C. A new, green variety is a cross between cauliflower and broccoli. It has the shape of cauliflower and the color of broccoli. Cauliflower should be ...., ... and compact.

****

creamy white • firm

Celery is graded Extra, No. 1, and No. 2. Pascal is the green celery that represents 85% of the total grown. Golden Heart is a bleached white. Celery is marketed the year around with principal supplies coming from California, Florida, Michigan, and New York. The stalk should be light green and glossy with fresh leaves. Rough or puffy stalks may be pithy. Celery is packed in 25 to 28 pound cartons with counts of 12, 18, or 24 and in 60 pound crates with counts of 18 to 48. Some suppliers will sell broken cases by the head. Celery is a fair source of vitamin C and very low in calories. Most of the .... celery is Pascal.

****

green

Collards are graded No. 1. Closely related to kale, they are available the year around from Georgia and Virginia, with the best supply from January through April. They should be fresh, crisp, clean, and free from insect injury. Wilting and yellowing indicates age and damage. They are packed in 20 to 23 pound cartons. Collards are an excellent source of vitamins A and C. Collards that are wilted and yellow indicate .... and ....

****

age • *damage*

Corn is another name for maize. It is graded Fancy, No. 1, and No. 2. Sweet corn is grouped by kernel color: yellow, bicolor, and white. Over 200 varieties are grown in United States. Good-quality corn has a fresh green husk with tender, milky, full kernels. Soft, small kernels are immature. Corn should be used immediately, for quality, sweetness, and flavor deteriorate rapidly. Packing is done 45 to 50 pound crates with counts of 54 to 66. Corn is a fair source of vitamin C and thiamine. Sweet corn is grouped by the kernel color: ...., bicolor, and ....

****

yellow • *white*

Cucumbers are graded Fancy, Extra No. 1, No. 1 Small, No. 1 Large, and No. 2. There are numerous species of cucumbers of various colors, sizes, skin textures, and time of maturity. They should be firm, crisp, and of characteristic color, not soft and flabby. Older ones are dull green to yellow. They are marketed the year around from Florida, North Carolina, South Carolina, and California. They are washed, graded, and then waxed to retard evaporation before shipping. They are packed in 26 to 28 pound cartons, 30 to 32 pound cartons, and 50 to 55 pound bushel cartons. They are a fair source of vitamin C. The top grade of cucumber is ....

****

Fancy

Eggplant is graded Fancy, No. 1, and No. 2. Most of it is a deep purple color, but other varieties with other colors are available. Purple eggplant should be clear, dark, and glossy. It should be heavy and have firm flesh. Eggplant should be used immediately and not stored. Avoid those that are soft, shriveled, cut, poorly colored, or with brown spots. They are packed in 20 to 22 pound lugs with 24 count and in 30 to 34 pound bushel cartons with 30 and 35 count. Eggplant is usually deep .... in color.

****

purple

Endive is graded No. 1. Curly endive grows in a bunchy head with narrow ragged-edged leaves that curl at the ends. It should not be confused with escarole or chicory, which have broad leaves. It is marketed the year around. Look for fresh, crisp, tender leaves with good green color. Do not accept heads with brown or yellow discoloration. Packing is done in 35 to 40 pound cartons with 24 count. It is a good source of vitamin A. Curly endive grows in a .... head.

****

bunchy

Escarole is a broad-leaved variety of Batavian endive, which does not curl at the tips. It is marketed the year around. The leaves should be bright green, crisp, fresh, and tender. Yellow or brown leaves are a sign of age and should not be accepted. The packing is done in 35 to 40 pound cartons with 24 count. It is a good source of vitamin A. Escarole leaves should be bright green, ..., and ....

****

crisp • *fresh*

Kale (a variation of the cabbage family) is graded No. 1 and Commercial. It is a large, hardy, curly-leaved head grown extensively in Virginia, Maryland, and New York. It is marketed the year around but is most abundant in the winter. Leaves should be crisp, clean, and free from bruises. Kale is packed in 18 to 25 pound cartons with varying counts. It is an excellent source of vitamins A and C. Kale is most abundant in the ....

****

winter

Lettuce is graded Fancy, No. 1, and No. 2. The general types are crisphead (Iceberg), butterhead (Boston and Bibb), cos (Romaine), leaf (bunching), and stem. Iceberg, the most popular of all salad greens, is grown almost exclusively in California and Arizona. Heads should be firm but not hard, free from burned or russeted tips, and fresh. Russet spots generally indicate overmaturity. It is marketed the year around. Packing is done in 44 to 52 pound cartons with counts of 18 to 30 and in 38 to 45 pound cartons with counts of 18 to 38. It is shipped under refrigeration, which retards deterioration but accelerates dehydration; to avoid this, it may be shipped vacuum cooled. Butterhead varieties have soft pliable leaves and a delicate buttery flavor. Principal varieties are Big Boston, White Boston, Bibb, and May King. Cos has a long, loaf-shaped head and long narrow leaves. The leaves appear coarse but are tender, sweet, and tasty. Leaf lettuce grows with leaves loosely branching from its stalk. It has a crisp texture. The enlarged stem or seed stalk of stem lettuce is peeled and eaten raw or cooked. Celtuce is the only variety sold in the United States. Shredded Iceberg is available in 5 and 10 pound bags for salads, with or without a mixture of other shredded vegetables. The very green leaves of lettuce are a fair source of vitamin A. The most popular of all salad greens is .... lettuce.

****

Iceberg

Mushrooms are graded No. 1 and No. 2. They range in color from white, off-white and cream, to light brown. They are marketed the year around with peak supply in November and December. They should be handled gently, for age and bruises cause darkening. Withered mushrooms should not be accepted. They are packed in 3, 5, and 10 pound cartons. Mushrooms are in peak supply in .... and ....

****

November • December

Mustard greens are graded No. 1. They are available the year around and are grown mainly in the South. The leaves should be fresh, tender, crisp, and green. Wilted, dirty, discolored, or spotted greens should not be accepted. The young tender leaves can be used in salads; the older tender leaves are used for cooking. The greens are packed in 18 to 25 pound bushel cartons with varying counts. Mustard greens are grown mainly in the ....

****

South

Okra is graded No. 1. It is commonly called quingumbo or gumbo. Good quality okra may be green or white, and the pods may be long and thin or short and chunky. They should be young, tender, fresh, and clean. A dry dull appearance is noted after extended storage. Okra is marketed the year around and is a good source of vitamin C. It is shipped in 10 and 20 pound baskets. Okra is commonly called quingumbo or ....

****

gumbo

Onions are grouped into two main categories, dry and green. The early dry varieties of Bermuda, Granex, and Grano are graded No. 1, Combination, and No. 2. The late varieties, which include Brigham Yellow, Globe, Yellow Sweet Spanish, Yellow Danvers, and White Globe as well as the Creole type, which includes all the strong-flavored red varieties, are graded No. 1, Export, Commercial, No. 1 Boilers, No. 1 Picklers, and No. 2. Dry onions are marketed the year around. They are packed in 10, 25, and 50 pound bags and in 48 to 50 pound fiberboard cartons with varying counts. Specify medium or large size. Cocktail onions are grown crowded together and harvested early to keep them from becoming too large. Good-quality onions will be firm with small necks and papery outer scales and will be free from sunburn spots. Do not accept those with thick, hollow, woody centers in the neck or with fresh sprouts. Green onions are graded No. 1 and No. 2. They have a definite bulb formation that is white about 3 inches above the root and have bright green tops. Also included in this group are shallots, sometimes called scallions, which are a cluster of immature undeveloped cloves stemming from a single root (they are also available dry); leeks, which have flat leaves and a white stalk about 1½ inches in diameter and 6 to 8 inches long; and chives, which are thick clumps of tiny underdeveloped pencil-lead thin onions used for their tops. All varieties are marketed the year around. Green onions are packed 48 bunches in a 25 pound carton. Shallots and leeks are packed 12 bunches in a 15 pound carton. Chives are packed 12 pots in a carton. Onions are grouped into two main catergories, ... and ....

****
dry • green

Parsley is graded No. 1. The two types are flat (Italian) and curly. Parsley is available the year around, with best supplies in October, November, and December. Good-quality parsley is dark green, crisp, and firm. Yellow indicates age and black watery areas indicate bruising. It is packed in cartons containing 60 bunches but may be purchased by the bunch from most distributors. It is an excellent source of vitamins A and C. Parsley may have .... or .... leaves.

****
flat • curly

Parsnips are graded No. 1 and No. 2. They are grown in the northern United States and California and marketed the year around, with the best supply from October through January. They should be small to medium size, fairly free from scraggly rootlets. Large ones may have a woody core. Avoid wilted, flabby roots. Parsnips are packed with 12 20 ounce bags per carton and in 25 and 50 pound bags. They are a fair source of vitamin A. Parsnips are marketed the ....

****
year around

Peppers are graded Fancy, No. 1, and No. 2. They are classified in two categories, those with mild or sweet-fleshed fruit and those with hot or pungent-fleshed fruit. The principal variety of mild pepper is Bell, which may be green or red. The winter supply comes from California, Florida, and Texas. The summer supply is grown throughout the United States. The principal varieties of hot peppers are Cayenne, Pimiento, and chilies such as Jalapeno, Serrano, Pasilla, and Anaheim. They are grown in New Mexico and California as well as being imported. Peppers are marketed the year around. They should be bell shaped, thick walled, and firm, with a uniform glossy color. Pale color and soft seeds indicate immaturity. Sunken spots are a sign of decay. Packing is done in 28 to 30 pound bushel cartons with varying counts. Peppers are an excellent source of vitamin C. The principal variety of mild pepper is ....

****
Bell

Potatoes are graded No. 1, Extra No. 1, and No. 2. The principal varieties of russets are Burbank, Norgold, and Centennial; long whites are White Rose; round whites are Katahdin, Kennebec, Superior, and Irish Cobbler; and round reds are Red Pontiac, Red McClure, Norland, and Red LaSoda. Potatoes are available the year around because they are easily stored. Most of the crop is harvested September to November. Early or new potatoes are thin skinned because of immaturity and must be handled carefully and used immediately. Potatoes should be firm, smooth, clean, and well shaped. They should not be cut, bruised, wilted, sprouted, or sunburned. They may be waxed to preserve freshness and colored to enhance appearance. Potatoes are sold by specific gravity as well as size and grade. The higher the specific gravity, the mealier a potato is, making it better for baking. A potato with a slightly lower specific gravity is waxy and better for boiling. Potatoes with even lower specific gravity are preferred for frying. Potatoes are packed in

50 pound cartons with counts of 60 to 120 and in bags weighing 50 and 100 pounds. They are a fair source of vitamin C and contain some vitamin A and a variety of other vitamins and minerals. The four types of potatoes are ...., long whites, ..., and round reds.

****
russets • round whites

Pumpkin and squashes are of the same family with virtually no distinction between them. Almost all the commercial pumpkin supply is from Illinois and is marketed in October. Size and shape have no effect on flavor and quality. Pumpkins are sold individually and are priced singly or by the pound. They are an excellent source of vitamin A and magnesium. Most pumpkins are marketed in ....

****
October

Radishes are graded No. 1 and Commercial. The principal varieties are Red Globe and White Icicle. They are plentiful the year around. The root should be plump, smooth, crisp, and firm. Do not accept those that are soft and spongy. They are packed without tops in bags with varying counts and weights. Radishes are a good source of vitamin C, potassium, and magnesium. Radishes are plentiful the ....

****
year around

Rutabagas are graded No. 1 and No. 2. The main variety is yellow fleshed. Most are grown in Canada. They are in season between July and April. They should be smooth skinned, firm, and heavy. Size is not a quality factor. Do not accept those with punctures, cuts, or decay. They are waxed to retain moisture and packed in 50 pound bags or cartons with varying counts. They are a fair source of vitamin A. Rutabagas are .... to retain moisture.

****
waxed

Spinach is graded No. 1 and Commercial. It is the most popular of the greens in the United States. It is available in three varieties: Savoy, which is curly; Semi-Savoy, which is slightly curled; and Flat-Leafed, which is broad leaved. It is raised in California and Texas. The leaves should be fresh, crisp, and clean with good green color. Do not accept wilted or yellow leaves or overgrown stems. It is marketed the year around, but the peak period is in late spring. It is packed in 20 to 22 pound cartons with varying counts. Spinach is excellent source of vitamins A and C, potassium, and magnesium. Spinach is raised in .... and Texas.

****
California

Squash is graded No. 1 and No. 2. Florida is the leading source of supply. The principal varieties of hard-shelled mature squash are Acorn, Banana, Butternut, Buttercup, and Hubbard. It is marketed the year around, the peak period of availability being in late autumn. They should be heavy for their size. Do not accept squash with cuts, punctures, mold, or sunburn spots. The principal varieties of soft-shelled immature squash are Crookneck, Scallops, (Patty Pan), Cocozelle, Yellow Straightneck, and Zucchini. It is marketed the year around, the peak period of availability being in late spring and early summer. These squashes should be well developed, firm, fresh, and glossy. Do not accept stale, overmature, dull, tough squash. Squash is packed in 20, 50, and 80 pound cartons with varying counts but may be purchased individually. The hard-shelled squashes are an excellent source of vitamin A. The two kinds of squash are .... and soft-shell immature.

****
hard-shelled mature

Sweet potatoes are graded No. 1, Extra No. 1, and No. 2. The main varieties are Centennial, Georgia Red, Jersey, Nemagold, Goldrush, Puerto Rico, and Velvets. The two types are dry meated and moist meated. The skin and flesh of the dry type are usually light yellow-tan, while the skin and flesh of the moist type vary in color from whitish-tan to brownish-red. Order thick, chunky, medium-sized sweets. Do not accept those with any sign of decay, which spreads rapidly and affects the taste. They are marketed the year around with the largest amounts available in late fall. They are packed in cartons with varying weights and counts. They are an excellent source of vitamin A and magnesium and a good source of vitamin C. The two types of sweet potato are .... and ....

****

moist • *dry*

Tomatoes are graded No. 1, Combination, No. 2, and No. 3. They are judged on four factors: color or general appearance, firmness, internal appearance, and flavor. Size is a matter of preference. Good-quality tomatoes should be full size, vine ripened, unblemished, and tomato red. "Vine-ripened" tomatoes are picked mature green and allowed to ripen in storage. Florida and California are the leading producers. Tomatoes are marketed the year around. They are packed in 18 to 20 pound lugs with counts of 50 to 60; in 28 to 30 pounds lugs with counts of 108, 126, and 147; and in 30 pound cartons with varying counts. The cherry tomato is a miniature variety that is 1 to 1½ inches in diameter when mature. They are packed in trays holding 12 pints and weighing 14 to 20 pounds. Fresh ripe tomatoes are a good source of vitamins A and C. Tomatoes are judged on four factors: .... or general appearance, ..., internal appearance, and flavor.

****

color • *firmness*

Turnips are graded No. 1 and No. 2. They may be either white or yellow. The peak period of availability is late autumn. They should be smooth, round, and firm. Do not accept those with too many leaf scars around the top and fibrous roots. They are usually packed without tops in 25 to 50 pound bags with varying counts, but early crops may be in 43 to 47 pound cartons with counts of 24 bunches with tops. Turnip tops are an excellent source of vitamins A and C. Turnips have a peak period of availability in late ....

****

autumn

Other less well known vegetables that might be used in some food service operations are:

alfalfa sprouts
anise
bamboo shoots
bean sprouts
bitter melon
black-eyed peas
bok choy
burdock
cactus leaves
cardoon
celeriac
celtuce
chard
chicory
chayote
chervil
coriander
daikon
dandelion
fennel
fiddlehead
garlic
ginger root
horseradish
jicama
kohlrabi
malanga
nappa
nopales
peas
snow peas

Other less well known .... may be used in food services.

****

vegetables

14

CANNED, FROZEN, AND DRIED VEGETABLES

Vegetables, like fruits, are canned, frozen, and dried so that the products that are available in the fresh form only during a short growing season or are shipped from remote localities may be enjoyed all year. The benefits and shortcomings of processing are similar to those of fruits. The packaging containers are also the same. Vegetables are canned, frozen, and dried so that they may be enjoyed all ....

****

year

Tomatoes, peas, corn, green beans, sweet potatoes, pumpkin, lima beans, and asparagus withstand processing with the least change; the leafy vegetables lose character at the high temperatures required. Cabbage is canned as kraut, and cucumbers are processed as pickles. The composition of canned vegetables is approximately the same as the same weight of the fresh product. Nutrients are lost through processing temperatures and solubility in liquids. Green and leafy vegetables change in flavor, texture, and color as well as nutritive value. The high temperatures required for processing cause .... and .... to lose character.

****

peas • corn

When purchasing vegetables, select the product that will most nearly fit the needs of the dish being prepared. Whole vegetables cost more than pieces or cut vegetables, fancy cuts cost more than diced or short cuts, and vegetables all the same size cost more than mixed sizes. The addition of special seasonings and butter sauce also adds to the cost of the product. When purchasing vegetables, select the product that will most nearly fit the .... of the dish being prepared.

****
needs

Form A, which follows, lists some of the vegetables that are available in processed form, the most common product styles, and container sizes. Many other products and combinations may be available in particular regions of the country. Vegetables are available in many product .... and container ....

****
styles • sizes

FORM A

Product	Can size							Frozen packages					Available dried	
	Gal	No. 10	No. 5	No. 3 cyl	No. 2½	No. 2	Retail	30 lb	25 lb	20 lb	6/case	12/case	Yes	No
Asparagus														
Center cuts		X					X					X		X
Cut spears		X			X		X					X		X
Cut spears, dietetic							X					X		X
Cuts and tips		X					X					X		X
Spears			X									X		X
Beans														
Baked		X	X		X		X							X
Butter		X			X		X						X	
Chili style		X			X		X							X
Green, cut, 4 sieve		X			X		X					X	X	
Green, cut, 5 sieve		X			X		X					X	X	
Green, diagonal cut		X					X					X		X
Green, French cut		X					X					X		X
Green, mixed cut		X					X					X		X
Green, short cut		X					X					X		X
Green, short cut, dietetic							X							X
Green, whole		X					X					X		X
Italian		X					X					X		X
Kidney, dark red		X			X		X							X
Kidney, light red		X					X							X
Lima, baby		X			X		X					X	X	
Lima, large		X			X		X					X	X	
Lima, medium		X			X		X					X	X	
Lima, medium, dietetic							X						X	
Navy		X			X		X						X	
Great Northern													X	
Pinto													X	
Pork and beans		X	X		X		X							X

FORM A (cont.)

Product	Can size							Frozen packages					Available dried	
	Gal	No. 10	No. 5	No. 3 cyl	No. 2½	No. 2	Retail	30 lb	25 lb	20 lb	6/case	12/case	Yes	No
Beans (*cont.*)														
Wax, cut, 3 sieve		X			X		X					X		X
Wax, cut, 4 sieve		X			X		X					X		X
Wax, cut, dietetic							X							X
Wax, diagonal cut		X					X					X		X
Wax, French cut		X												X
Wax, mixed cut		X												X
Wax, short cut		X												X
Beets														
Diced		X					X					X	X	
Diced, dietetic							X							X
Pickled, sliced		X					X							X
Pickled, whole		X					X							X
Sliced		X			X		X							X
Sliced, dietetic							X							X
Whole, tiny		X					X							X
Broccoli														
Chopped												X		X
Cuts												X		X
Florets												X		X
Pickled							X							X
Spears											X	X		X
Brussels sprouts										X		X		
Whole							X							X
Pickled							X							X
Carrots														
Diced		X			X		X			X		X	X	
Diced, dietetic							X							X
Sliced		X					X							X
Whole baby		X			X		X							X

FORM A (cont.)

Product	Can size							Frozen packages					Available dried	
	Gal	No. 10	No. 5	No. 3 cyl	No. 2½	No. 2	Retail	30 lb	25 lb	20 lb	6/case	12/case	Yes	No
Cauliflower											X			
Cut							X							X
Pickled							X							X
Celery		X											X	
Chop suey vegetables		X										X		X
Collards		X					X					X		X
Corn														
Cream-style		X			X		X					X		X
Relish		X					X							X
Whole ear									48 or 96 count					X
Whole kernel		X			X		X					X	X	
Whole kernel, dietetic							X							X
Hominy														
Golden		X			X		X						X	
White		X			X		X						X	
Mixed vegetables														
Diced		X					X			X				X
Diced, dietetic							X							X
Stew cut		X										X		X
Mushrooms														
Caps							X							X
Stems and pieces							X							X
Whole							X							X
Mustard greens							X					X		X
Onions														
Diced												X	X	
Sliced												X		X
Whole		X					X					X		X
Pickled							X							X
Peas														
Green, 3 sieve		X					X						X	

FORM A (cont.)

Product	Can size							Frozen packages					Available dried	
	Gal	No. 10	No. 5	No. 3 cyl	No. 2½	No. 2	Retail	30 lb	25 lb	20 lb	6/case	12/case	Yes	No
Peas (*cont.*)														
Green, 4 sieve		X					X						X	
Green, dietetic							X							X
Split													X	
Peas and carrots		X								X			X	
Peas and onions		X									X			X
Peppers														
Green		X					X					X	X	
Pimiento					X									X
Red, sweet		X					X						X	
Pickles, dill														
Cross cut	X	X					X							
Slices, kosher	X	X					X							
Spears, kosher	X	X					X							
Whole	X	X					X							
Pickles, sweet														
Cross cut	X	X					X							
Midget	X	X					X							
Mixed	X	X					X							
Relish	X	X					X							
Slices	X	X					X							
Spears	X	X					X							
Whole	X	X					X							
Potatoes														
Sweet, cut; light syrup		X	X		X		X					X		X
Sweet, mashed; light syrup		X			X		X							X
Sweet, whole; light syrup		X	X		X		X					X		X
Sweet, cut, mashed, whole; dietetic							X					X		X
White, diced		X									X	X	X	
White, French fries												X		X
White, hash browns												X	X	

FORM A (*cont.*)

Product	Can size							Frozen packages					Available dried	
	Gal	No. 10	No. 5	No. 3 cyl	No. 2½	No. 2	Retail	30 lb	25 lb	20 lb	6/case	12/case	Yes	No
Potatoes (*cont.*)														
White, instant mashed													X	
White, shoestring		X		X	X		X							X
White, sliced													X	
White, whole		X			X		X							X
Pumpkin		X		X	X		X					X		X
Sauerkraut		X			X		X					X		X
Spinach														
Chopped		X					X					X		X
Cut		X					X					X		X
Cut, dietetic							X							X
Leaf		X					X					X		X
Leaf, dietetic							X							X
Squash														
Blended		X			X		X					X		X
Mashed					X		X					X		X
Succotash		X			X							X		X
Tomatoes														
Catsup		X					X							X
Diced		X			X		X							X
Paste		X					X							X
Puree		X					X							X
Stewed		X			X		X							X
Whole		X			X		X							X
Whole, dietetic							X							X
Tomatoes and hot peppers		X					X					X		X
Tomatoes and okra		X					X					X		X
Tomatoes and zucchini		X					X					X		X
Turnip greens		X					X					X		X
Zucchini		X					X					X		X

15 CEREAL PRODUCTS

Cereal grains are the dry kernels of barley, corn, oats, rice, rye, soy, and wheat. They are similar in structure but differ in size and shape. The three structural parts of the kernel are bran, which is the outer protective covering of the kernel; endosperm, which makes up about 85% of the kernel and contains the food supply of the plant; and the germ, which contains elements that are necessary for reproduction. Cereal grains are the dry .... of barley, corn, oats, rice, rye, soy, and wheat.

****
kernels

Barley is usually sold as pearl barley, which is the whole grain with hulls and bran removed. It is used principally as a soup ingredient. It may also be made into a flour that is used in baby foods, breakfast cereals, and breads made of a combination of flours. It is low in protein and fat and high in mineral content. Pearl barley is available in retail packages and 25 pound bags. Barley flour is available in retail packages and 10 pound bags. Barley is usually sold as ....

****
pearl barley

Cornmeal is made by grinding cleaned white or yellow corn to the desired fineness. Cornmeal contains small amounts of fat and crude fiber and not more than 15% moisture according to federal standards. Bolted white or yellow cornmeal is the same as regular, but it is ground finer. Enriched cornmeal contains added thiamine, riboflavin, niacin, and iron. It may also contain additional calcium and vitamin D. Cornmeal is available in 1, 5, 10, 25, 50, and 100 pound bags. Cornmeal is made by grinding white and yellow .... to the desired fineness.

****
corn

Corn flour may be a by-product in the preparation of cornmeal or may be prepared especially by milling and sifting yellow and white corn. It is used for the preparation of tortillas and in bread made of a combination of flours. Corn flour is available in retail packages and 10 pound bags. Corn .... may be prepared by milling and sifting yellow and white corn.

****
flour

Grits are prepared by grinding and sifting white and yellow corn from which the bran and the germ have been removed. They are more coarsely ground than cornmeal and they are available in retail packages and 25 pound bags. .... are prepared by grinding and sifting white or yellow corn.

****
grits

Hominy is corn with the hull and germ removed. Pearl hominy is whole-grain hominy with the hulls removed by machinery. Lye hominy is whole-grain hominy that has been soaked in lye water to remove the hulls. Granulated hominy is a ground form. Hominy is available in retail packages and 25 pound bags. Hominy is corn with the .... and .... removed.

****
hull • germ

Cornstarch is the refined starch obtained from the endosperm of corn. Waxy cornstarch or waxy maize starch is prepared from waxy corn. It acts as a stabilizer for frozen sauces and pie filling. Cornstarch is an ingredient in regular and instant pudding mixes. It is available in 1 pound packages and 25 pound bags. The refined starch obtained from the endosperm of corn is ....

****

cornstarch

Corn cereals are prepared from corn grits that have been cooked and shaped into flakes, puffs, shreds, and other ready-to-eat forms, then dried or toasted. They may be enriched with thiamine, niacin, and iron. Corn cereals may be combined with other cereals and may be flavored or sugar coated. They are available in individual portions, retail packages, and bulk packs. Corn cereals may be .... with thiamine, niacin, and iron.

****

enriched

Rice is the white, starchy, polished, endosperm of the rice grains. Brown rice or hulled rice is the grain from which only the hull has been removed. Rice is classified as long grain, medium grain, and short grain. Enriched rice is prepared by including a percentage of kernels that have been enriched with B vitamins and iron. Precooked (instant) rice is packaged long grain rice that has been cooked, rinsed, and dried by a patented process. This rice requires a very short preparation time. Parboiled rice has been steeped in warm or hot water, drained, steamed (usually under pressure), and dried before it is hulled and milled. Converted rice is parboiled rice made by a specific patented process. Wild rice is the long brownish grain of a reedlike water plant. It is hulled but not milled. Rice is available in retail packages, and 10 and 25 pound bags. The classifications of rice are ...., medium grain, and short grain.

****

long grain

Rice bran consists of bran and germ with varying quantities of hulls. It is a smooth brownish powder with a faintly sweet taste. Rice polish consists of inner bran layers and some endosperm. It is a smooth yellowish powder with a sweet taste. Rice flour is a white starchy flour milled from white rice. Waxy rice flour is made from waxy rice and acts as a stabilizer in sauces and gravies and prevents separation in frozen products. These products are available in retail packages and 10 pound containers. Rice bran, rice polish, rice flour, and waxy rice flour are powdered products made from ....

****
rice

Wheat products may be used as main dish accompaniments as well as for cereals and flours. Bulgur wheat or parboiled wheat is whole wheat that has been cooked, dried, partly debranned, and cracked into coarse fragments. Wurld wheat is similar to bulgur but is much lighter in color as a result of chemical peeling of the bran. Wurld wheat is higher in cost and less nutritious than bulgur. Wheat germ is the fat-containing portion of the wheat kernel. The germ is flattened and then sifted out as a yellow oily flake. Cracked wheat is prepared by cracking or cutting cleaned wheat, other than durum, into fragments. Wheat meal is prepared from finely ground whole wheat or parts of the grain. These wheat products are available in retail packages and often found only in health food or specialty stores. .... products may be used as main dish accompaniments as well as for cereals and flours.

****
wheat

Pasta, the generic word for macaroni, spaghetti, and egg noodles, derives from the Italian phrase "pasta alimentare." "Alimentare" relates to the function of nutrition and "pasta" is the dough made by mixing a special kind of flour with water. The generic word for macaroni, spaghetti, and egg noodles is ....

****
pasta

Pasta products are made from an amber-colored high-protein wheat known as durum, which is grown in North Dakota. Of the wheat grown in the United States, durum produces the best flavor, color, and texture in pasta. Pasta products are made from high-protein .... wheat.

****

durum

Coarsely ground endosperm of durum wheat is known as semolina. It is enriched with B vitamins and iron and mixed with water to produce pasta products other than egg noodles. A fine granulation of durum wheat with added B vitamins and iron mixed with 5.5% egg solids is used for egg noodles. Flavored noodles are made by combining dried ground spinach with the wheat flour. Pasta products are enriched with .... and ....

****

B vitamins • iron

Pasta is often divided into four groups: long goods–spaghetti, linguine, vermicelli; short goods–macaroni, rigatoni, ziti; specialty–manicotti, lasagne, shells; and noodles–pasta made with eggs. (Pasta is available in many other shapes than the examples given.) Any pasta labeled noodles is made with ....

****

eggs

Pasta for food service is usually packed in bulk in boxes. Egg noodles and specialty products are packed in 10 pound boxes. Long and short goods are packed in 20 pound boxes. Uncooked pasta will keep indefinitely if stored in a cool, dry place. Pasta should be stored in a .... place.

****

cool dry

Just as semolina is a rough granulation of durum wheat, farina is a rough granulation of any other high-quality hard wheat. It is enriched and can be used in pasta products, blended with semolina, or cooked as a wheat cereal. Enriched farina contains added thiamine, niacin, riboflavin, and iron. Calcium and vitamin D may also be added. A rough granulation of wheat other than durum is called ....

****
farina

Ready-to-eat wheat cereals are prepared from whole wheat or parts of the grain. These products are precooked, flavored with malt and sugar, then dried in various forms such as flakes, puffs, or shreds. They may be sugar coated. Enriched cereals contain additional vitamins and/or minerals that may not have been present in the whole grain in significant amounts. Restored cereals contain added amounts of thiamine, niacin, and iron to restore them to the levels contained in the original grain. Cereals are available in individual serving containers, retail packages, and quantity bulk packs. Ready-to-eat ....
are prepared from whole wheat or parts of the grain.

****
wheat cereals

Wheat flour may be all-purpose or general-purpose and is prepared by milling and sifting cleaned wheat. It consists primarily of endosperm and may be bleached or unbleached. It may be used for most general cookery purposes and is available in 5, 10, 25, 50, and 100 pound bags. Wheat .... is prepared by milling and sifting cleaned wheat.

****
flour

Enriched flour is white flour that contains added thiamine, niacin, riboflavin, and iron. It may also contain calcium and vitamin D. Gluten flour is a mixture of wheat flour and gluten, which results in a higher protein content.

Self-rising flour is flour to which leavening ingredients and salt have been added in proper proportions for general baking. The leavening ingredient is usually a combination of soda and calcium phosphate. Whole wheat or graham flour is prepared by milling cleaned wheat other than durum and red durum in such a way as to retain the natural proportions of bran, germ, endosperm, and the specific nutrients normally contained in the whole unprocessed grain. Enriched and whole wheat flours are available in 5, 10, 25, 50, and 100 pound bags. Self-rising and gluten flours are available in 1, 5, and 10 pound bags. Enriched flour is white flour that contains added ...., ..., riboflavin, and iron.

****
thiamine • niacin

Bread flours are milled from blends of hard spring and winter wheats or from either of these types alone. They are fairly high in protein and slightly granular to the touch. They may be bleached or unbleached. Bread flours are milled primarily for bakers. They are available in 25, 50, and 100 pound bags. Bread flours may be .... or ....

****
bleached • unbleached

Cake flours are milled from soft wheats and are the most highly refined flours. The protein content is low and the granulation so uniform and fine that the flour feels soft and satiny. These are used primarily for baked products. They are available in retail packages and in 25, 50, and 100 pound bags. Cake flours are milled from .... and are the most highly refined.

****
soft wheats

Instant, instantized, instant-blending, or quick-mixing flour is a granular all-purpose flour that blends more readily with liquid than regular flour. To assure good quality in the final baked product, changes in formulas are needed. Instant flours are available in retail packages. Instant flour is a .... all-purpose flour that blends readily with liquid.

****
granular

Pastry flours are usually made of soft wheats, are fairly low in protein, and are finely milled. They are used for making pastries and specialty products, mainly by commercial bakers. They are available in 50 and 100 pound bags. .... are usually made of soft wheats.

****
pastry flours

Buckwheat flour is the finely ground product obtained by sifting buckwheat meal. It is available in retail packages and 50 pound bags. .... is the finely ground product obtained by sifting buckwheat meal.

****
buckwheat flour

Oatmeal or rolled oats is made by rolling hulled oats to form flakes. Regular oats and quick-cooking oats differ only in the thinness of the flakes. For quick-cooking oats, the groats (edible portion of the kernel) are cut into tiny particles that are then rolled into thin flakes. Oatmeal is used as a cereal and an ingredient in baking. It is available in retail packages and 50 pound bags. Oatmeal is made by .... the oats to form ....

****
rolling • flakes

Potato flour is prepared from cooked potatoes that have been dried and ground. It is available in retail packages and 50 pound bags. Potato flour is prepared from cooked potatoes that have been .... and ....

****

dried • ground

Rye flour is the finely ground product obtained by sifting rye meal. It is available in three grades: white, medium, and dark. Rye flour produces gluten of low elasticity. It is available in retail packages and 50 pound bags. .... is the finely ground product obtained by sifting rye meal.

****

rye flour

Soy flour is highly flavored. It is combined with wheat flour in baked products because it lacks gluten-forming proteins needed for bread making. Full-fat soy flour is made by grinding soybeans that have only the hull removed. Low-fat soy flour is made from the press cake after all or nearly all the oil is taken out of the soybeans. The soybeans may be heat-treated or conditioned with steam prior to oil extraction. Soy grits are made from coarsely ground soy press cake and are a low-fat product. Soy flour and grits are available in retail packages and 10 pound bags. Full-fat soy flour is made by grinding .... that have only the .... removed.

****

soybeans • hull

16 SPICES, HERBS, AND FLAVORINGS

Spices and herbs are aromatic natural products used to aid and enhance the natural flavors of foods, not to obscure them. They may be the root or rhizome, the bud, the seed, the bark, the fruit, or the flower. There is a difference of opinion among experts as to the classification of herbs and spices. This compilation will be divided into ground spices, herbs, seeds, blends, and vegetables. Seasonings should be stored in a cool dry place, since heat reduces their flavor and moisture will cause them to cake. .... and .... are aromatic natural products.

****

spices • herbs

Ground spices give up their flavors quickly and are used in uncooked dishes or added near the end of the cooking period. Whole spices are added at the beginning of a long cooking period and removed before serving. The following whole or ground spices may be used in food service:

Allspice is a pea-sized fruit that grows in small clusters on a tree. Picked green, the fruit appears as shriveled brown berries after curing. It is available whole or ground.

Capsicum pepper is a dried, many-seeded berry. There are many varieties, including cayenne and chili pepper. It is ground to yield a hot, reddish powder.

Cinnamon comes from the bark of an aromatic evergreen tree. Cassia has a reddish-brown color and pungently sweet aroma and flavor. Ceylon cinnamon is more buff colored and has a milder flavor. It is available whole or ground.

Cloves are the fruit of a tree belonging to the evergreen family. They are a dark brown, dusky red color. The flavor is a sweet, pungent spiciness. It is available whole or ground.

Ginger is the rhizome of a tuberous plant and has a weak yellow-orange skin and yellow-brown interior. The flavor is warm and fragrant, with a pungent spiciness. It is available fresh, whole, preserved (candied), or ground.

Mace is the fleshy growth between the nutmeg shell and the outer husk. It is orange in color and has a flavor that resembles nutmeg. It is available whole or ground.

Nutmeg is the kernel of the nutmeg fruit, which grows on a tree. The fleshy husk splits on one side releasing the deep-brown, aromatic nutmeg. The flavor is sweet and spicy. It is available whole or ground.

Paprika is a sweet red pepper that is ground after the seeds and stems have been removed. It is mild and sweet in flavor, slightly aromatic, and a brilliant red color.

Pepper is the small dried berry of a vine. Whole pepper berries are known as peppercorns. White pepper is the same berry with the outer black cover removed. The flavor is warm, pungent, and aromatic. Pepper is available whole, ground, or coarse ground black and whole or ground white, sometimes mixed with other flavorings.

Saffron is the world's most expensive spice. It is the stamen of a crocuslike flower, The flavor is distinctive and agreeable and gives food an appetizing yellow color.

Turmeric is a root in the ginger family. It is bright orange-yellow in color. It is an important ingredient in curry powder and as a seasoning for pickles. The flavor is a mild ginger-pepper. It is available ground.

Ground spices give up their .... quickly.

****

flavors

Herbs are generally the aromatic leaves and sometimes the flowers of plants, although other parts are also used. Usually, a small amount is all that is needed to provide characteristic flavor. Herbs retain flavor longer if stored as whole leaves. The following herbs may be used in food service:

Basil, also known as sweet basil, comes from the cleaned, dried leaves and tender stems of a bushy plant. Its aromatic flavor has a pleasing leafy quality. The leaves are available crushed or powdered.

Bay leaves are the dried leaves of the laurel tree, an evergreen. The smooth oblong leaves are deep green on the upper surface and paler beneath. The flavor is sweet and herbaceous with a delicate floral spice quality. It is available in leaf form.

Chervil is an aromatic herb of the carrot family, available crushed or powdered.

Dill weed is a European herb of the carrot family, available crushed or powdered.

Horseradish is a tall, coarse, white-flowered herb of the mustard family. The pungent root is ground for use as a bottled condiment. It is also available dried and powdered.

Marjoram is an herb of the mint family. It has a peculiar, sweet, minty, herbaceous flavor. The leaves are available crushed or powdered.

Mint is available as the dehydrated, flaked leaves of spearmint or peppermint. It has a strong, sweet flavor.

Oregano is a variety of sage. It is available as crushed or ground leaves.

Rosemary is a spikey herb that looks like a curved pine needle. It is sweet and fresh tasting. It is available as leaves or ground.

Savory is an herb of the mint family. The flavor is deliciously sweet and herbaceous. The leaves are available crushed or ground.

Sage is a perennial shrub. The flavor is camphoraceous, with a minty spiciness. The leaves are available rubbed or ground.

Tarragon is a small perennial plant, which forms tall stalks. It is minty, herbaceous, and aniselike in flavor. It is available as leaves or ground.

Thyme is a low shrub. The leaves and stems of this garden herb have a strong, distinctive flavor. It is available as leaves or ground.

.... are generally aromatic leaves and flowers of plants.

****

herbs

Seeds are the aromatic, dried, small whole fruit or seeds of plants. They may be spices or herbs. The following seeds may be used in food service:

Anise is a dried, greenish brown seed. It is much used in flavoring licorice.

Caraway seeds are somewhat curved, tapering toward both ends. The flavor is a combination of dill and anise with a slight fruitness.

Cardamom seeds are tiny brown seeds that grow enclosed in a white or green pod, 1/4 to 1 inch long. The flavor is sweet and spicy with a camphoraceous note. It is available whole or ground.

Celery seed is a minute, olive brown seed from the celery plant. It has a parsley-nutmeg flavor. Celery salt is a combination of ground celery seed and salt.

Coriander is the dried fruit of a small plant. Externally, it is weak yellow-orange to moderate yellow-brown, often with a purplish red blush. The flavor has a sweet, dry, musty spice character tending toward lavender. It is available as seed or ground.

Cumin is a small dried fruit, oblong in shape. It resembles caraway seeds. The flavor is penetrating. It is an ingredient in chili powder and is available as seed or ground.

Dill seed is the small dark seed of the dill plant. It is brown, broadly oval in outline, and rounded at both ends. The flavor is clean and aromatic with a green, weedy character.

Fennel is a small seedlike fruit with an agreeable odor and aromatic sweet taste similar to anise.

Fenugreek is the aromatic seed of an annual Asiatic herb of the pea family. It is used in making curry powder.

Mustard is a small seed. Brown or black mustard has dark brown spheroidal seeds; yellow or white mustard has subglobular seeds and is milder flavored. The brown and black is the pungent variety. All are available as seed or powdered.

Poppy seeds come from capsular fruit of bristly haired plants characterized by showy flowers. The tiny round seeds are black when ripe.

Sesame is a small honey-colored seed with a gentle nutlike flavor. It is available as hulled seed.

Poppy and sesame seeds are usually toasted before they are used. Because of their high oil content, they are never sold in the ground form.

Seeds are the aromatic, dried, small whole .... of plants.

****

fruit

Many blends have been developed by spice manufacturers to make seasoning easy. Some of the more popular combinations used in food service are:

Apple pie spice is a ground blend of cinnamon with small amounts of cloves, nutmeg or mace, allspice, and ginger.

Barbecue spice is a ground blend of chili peppers, cumin, garlic cloves, paprika, salt, and sugar.

Chili powder is a ground blend of chili peppers, oregano, cumin, garlic, salt, and sometimes cloves, red pepper, and allspice.

Crab boil is a combination of whole spices and herbs to be added to water when boiling seafood. It includes whole peppercorns, bay leaves, red peppers, mustard seeds, ginger, and others.

Curry powder is a ground blend of 16 to 20 spices and herbs. Most blends will include ginger, turmeric, fenugreek, cloves, cinnamon, cumin, black pepper, red pepper, and others according to the preference of the blender.

Herb seasoning is a savory blend of herbs often including marjoram, oregano, basil, chervil, etc.

Italian seasoning is a blend of Italian spices and herbs such as oregano, basil, red pepper, and rosemary. Garlic powder and other flavorings may also be included.

Mixed pickling spice is a mixture of whole spices and herbs, usually including mustard seed, bay leaves, black and white peppercorns, dill seed, red peppers, ginger, cinnamon, mace, allspice, and coriander seed.

Poultry seasoning is a ground blend of sage, thyme, marjoram, savory, and sometimes rosemary and other herbs.

Pumpkin pie spice is a ground blend of cinnamon, cloves, and ginger.

Seafood seasoning is a ground blend of the spices and herbs used in crab boil and shrimp spice with the addition of salt.

Shrimp spice is a combination of whole spices and herbs similar to crab boil.

Seasoned or flavored salt is a mixture of spices, herbs, and salt designed to be an all-purpose seasoning.

Many .... have been developed to make seasoning easy.

****

blends

Dehydrated vegetable seasonings are intended to be laborsaving. They rehydrate in 5 to 20 minutes depending on the product. They may be rehydrated as part of the cooking process or separately to be used as a garnish or ingredient.

Celery flakes are dehydrated flaked leaves and stalks of celery.

Garlic may be dehydrated and minced, powdered, or mixed with salt.

Mixed vegetable flakes are a mixture of dehydrated flaked celery, green peppers, and carrots.

Onions may be dehydrated and sliced, chopped, minced, powdered, or mixed with salt.

Parsley flakes are dehydrated flaked parsley leaf and stem material.

Pepper flakes or **sweet pepper flakes** are dehydrated flaked sweet green or red peppers or a mixture of the two.

Dehyrated .... seasonings are laborsaving.

****

vegetable

Flavorings are liquid additives made by combining the oil or essence of a product with alcohol and water. The most common of these are vanilla and peppermint. Others include almond, anise, brandy, mint, orange, and wintergreen. Artificial flavorings are prepared by combining selected oils and esters with alcohol and water. They include banana, black walnut, burnt sugar, butter, chocolate, lemon, maple, rum, strawberry, and vanilla. .... are liquid additives.

****

flavorings

Food colorings, although not flavorings, are used to change or enhance the color of the food to which they are added. They are available in liquid, paste, and powdered form. The most popular colors are red, blue, black, brown, flesh, orange, peach, pink, green, yellow, caramel, and egg shade. Food .... are used to change or enhance the color of food.

****

colorings

17 SWEETENING AGENTS

There is a wide variety of sweetening agents used as additives to make foods and beverages taste sweeter. Most of the caloric sweetening agents are sugars and syrups. Sugars are carbohydrates. They range from monosaccharides, which are single molecules, and disaccharides, composed of pairs of monosaccharides, to polysaccharides, composed of combinations of mono- and disaccharides. Fructose and dextrose, also called glucose, are monosaccharides. Maltose, lactose, and sucrose are disaccharides. All other complex sugars and starches are polysaccharides. There is a wide variety of .... agents used as additives to make foods and beverages taste sweeter.

****

sweetening

Sugar is refined sucrose extracted from sugar beets and sugarcane. Sugars from these two sources are both 99.5% pure sucrose. White granulated sugar is the standard product for general use. Manufacturers may have variations in particle size and names for the variations; these do not affect the sweetening ability. Sugar is available in numerous sizes and types of packages, from 1 pound cartons to 100 pound bags, as well as individual packets containing approximately 1 teaspoon. White .... sugar is the standard product for general use.

****

granulated

Superfine granulated sugar is uniformly fine grained. It is designed for special use in cakes and mixed drinks and other uses where rapid dissolving is desirable. It is available in 1 pound cartons. Superfine granulated sugar is uniformly ....

****
fine grained

Powdered or confectioner's sugar is granulated sugar that has been crushed and screened to a desired fineness. It is used in icings and frostings and for dusting doughnuts and pastries. It is usually combined with a small amount of cornstarch to prevent caking. It is available in 1 pound cartons and 2, 25, and 50 pound bags. Powdered sugar is granulated sugar that has been .... and ....

****
crushed • *screened*

Cut tablets are made from sugar that has been molded into slabs that are cut or clipped into various sizes and shapes. Pressed tablets are made by compressing moist white sugar into molds to form the various shapes, which are oven dried to produce hard, smooth units of various sizes. Cubes are also formed in molds. Sizes range from 200 to 80 pieces per pound. Tablets and cubes are packed in 1 and 2 pound cartons. Pressed .... are made by compressing moist white sugar into molds.

****
tablets

Brown sugar contains molasses, nonsugars naturally present in molasses (ash), and moisture in varying ratios. It may be produced from the syrup remaining after the removal of commercially extractable white sugar or by the addition of refined syrups to specially graded, uniformly minute white sugar crystals. It may be yellow, golden yellow, golden brown, light brown, or dark or old-fashioned brown. The strength of molasses flavor increases with color intensity. It may be obtained in moist or dry granulated form. Care should be taken to avoid drying in storage. Brown sugar imparts a pleasing, characteristic flavor to baked goods and candy. It is available in 1 pound cartons and 2, 25, and 50 pound bags. Brown sugar contains ...., ash, and moisture.

****

molasses

Maple sugar is the solid product resulting from evaporation of maple sap or maple syrup. It consists mostly of sucrose with some invert sugar (dextrose and levulose) and ash. Corn sugar is crystallized dextrose (glucose) obtained by hydrolizing cornstarch with acid. Raw sugar is unrefined crystalline sugar. The crystals are dark, coarse, and sticky because they contain the molasses portion of the sugar. Other sugars on the market are .... sugar, ... sugar, and raw sugar.

****

maple • corn

Cane syrup is the sap of sugarcane, concentrated by evaporation. The recommended maximum ash content is 4.5% in the unsulfured product and 6% in the sulfured product. It is used primarily as an ingredient in other syrups. Cane syrup is the sap of .... concentrated by evaporation.

****

sugarcane

Molasses is the by-product of sugar manufacture. Table molasses is light in color and contains a higher percentage of sugars and a smaller percentage of ash than cooking molasses. Cooking molasses is dark (blackstrap) in color. Barbados molasses is a specially treated cooking molasses that resembles cane syrup more than molasses in composition. Refiners' syrup is the residual product obtained in the process of refining raw cane or beet sugar. It is clarified and decolorized. It is a solution and suspension of sucrose, partially inverted sucrose, and not more than 28% moisture. It is used extensively in flavoring corn syrup. Molasses is available in ½ gallon, 1 gallon, and retail containers. By-products of sugar manufacture are .... and ....

****
molasses • refiners' syrup

Sorghum syrup is obtained by concentration of the juice from sorghum cane. It has a distinctive flavor and may be used as a substitute for molasses and other syrups. It contains not more than 30% water or 6.25% ash calculated on a dry basis. It is available in retail containers. Sorghum syrup is the concentrated juice from .... cane.

****
sorghum

Corn syrup is obtained by partial hydrolysis of cornstarch. The liquid is neutralized, clarified, and concentrated to the desired consistency. The principal sugars are dextrose, maltose, and dextrins. Light corn syrup has had clarifying and decolorizing treatment. Dark corn syrup is a mixture of corn syrup and refiners' syrup, which gives a darker color and distinctive flavor. The above syrups are available in 1 gallon and retail containers. .... is obtained by partial hydrolysis of cornstarch.

****
corn syrup

Maple syrup is made by evaporation of maple sap or by solution of maple sugar. It contains not more than 35% water and weighs not less than 11 pounds per gallon. It is available in individual portions and a variety of tabletop sizes and in 1 gallon containers. It is very expensive. Many facilities will choose to serve imitation maple syrup, which may be prepared by combining a variety of other syrups with maple flavoring or imitation maple flavoring. Maple syrup is made by .... of maple sap.

****
evaporation

Honey is the nectar of plants that has been gathered, modified, stored, and concentrated by honeybees. The different flavors of honey are classified according to the plant from which the nectar was taken. The principal ingredients in honey are levulose (fructose) and dextrose (glucose). The water content is limited to 20%. Crystals may form in stored honey because of the concentration of the sugar solution, but they can be dissolved by heating. Honey is available in individual portions and in 5 and 6 pound and retail containers. Honey is the .... of plants.

****

nectar

Most of the honey on the market is extracted honey or honey that has been separated from the comb. Honey creme or spread has been commercially crystallized to make it a more spreadable product. Comb honey is expensive because it is difficult to produce and requires special care in handling and storage. The top grade of honey is US Grade A or US Fancy. Less desirable honey is US Grade B. The most important factors in the grading of honey are flavor, clarity, and absence of defects. The mildest honey is from clover. Honey creme, honey spread, and comb honey are available in retail containers. Extracted honey has been separated from the ....

****

comb

Fructose is a sweetener made from corn. Through a process called isomerization, the atoms in the dextrose molecule of cornstarch are rearranged to produce fructose. High-fructose corn syrups are very popular in the food industry; more recently, a crystalline form of fructose is available in this country. High-fructose corn syrups (HFCS) are available in three concentrations: 42% HFCS is made of 42% fructose, 52% dextrose, and 6% polysaccharides; 55% HFCS is made of 55% fructose, 40% dextrose, and 5% polysaccharides; 90% HFCS is made of 90% fructose, 7% dextrose, and 3% polysaccharides. Fructose is generally considered the sweetest of all sugars, but the perceived sweetness will vary, depending on how it is used. When fructose is used in warm foods, its sweetness is similar to table sugar; but in cold foods, the perceived sweetness is 1½ times that of table sugar. Fructose is superior to sucrose as a browning agent, it enhances natural flavors, and may be stored at room temperature without deterioration. HFCS is available in 1 gallon, 55 gallon, and retail containers. Crystalline fructose is available in individual portions, at retail, and in quantity by special order through the supplier. .... is a sweetener made from corn.

****

fructose

Three polyalcohols or sugar alcohols serving as sweeteners are sorbitol, mannitol, and xylitol. Sorbitol and mannitol are about 0.5 to 0.7 times as sweet as sucrose. Sorbitol is used in dietetic candies and chewing gum. Mannitol is used as a bulking agent in powdered foods and to dust chewing gum. Xylitol has the same sweetness as sucrose and is used in various foods and in chewing gum. Sorbitol and mannitol are not as sweet as ....

****

sucrose

Jellies, jams, preserves, and marmalades are fruits or fruit juices that have been cooked with sugar to the desired consistency. The FDA has established standards of identity for jams, jellies, and preserves. To meet the standards, the composition must be no less than 45 parts of fruit to 55 parts of sweeteners by weight. Products not meeting the standards must be labeled "imitation." Jelly is a clear product made of fruit juice with no fruit solids. Jam is a product made of juice and pieces of fruit that have not retained their original shape. Preserves is a product made of fruit that has maintained its original shape throughout preparation. Marmalade is a thick pulpy jam, usually containing shreds of fruit rind. All four products are available in individual portions, No. 10 cans, and retail containers. The FDA has stand-

ards of identity for ....,
and ....

****

jams • jellies • preserves

Jams and jellies that will withstand the high temperatures of baking are available from bakery suppliers for use in sweet rolls, coffee cakes, and other fruit-filled pastries. They are made with waxy maize starch for clarity and to prevent breakdown at high and low temperatures. They are available in 2 pound pouches and 40 pound pails. Marmalade comes in a 20 pound pail. Special jams and jellies are available that will withstand the .... of baking.

****

high temperatures

Jams and jellies with less viscosity are used as toppings for ice cream and other desserts. They are available in individual portions, No. 10 cans, 30 pound pails, and retail containers. Jams and jellies with less .... are used as toppings.

****

viscosity

Saccharin is a noncaloric sweetener that is 300 times sweeter than sucrose. It has a stable shelf life, combines well with other sweeteners, and has a synergistic effect when combined with other sweeteners (the combinations are sweeter than the sum of the individual sweeteners). Aspartame is a nutritive sweetener made from two commercially produced amino acids, L-phenylalanine and L-aspartic acid. It is 200 times sweeter than sucrose. It has a sugarlike taste and a synergistic effect when combined with other sweeteners. It is unstable at prolonged high heat so cannot be used for baking, and it breaks down gradually in liquid. Cyclamate is a noncaloric sweetener that is 30 times sweeter than sucrose. It has a stable shelf life, is soluble in liquids, has a sugarlike taste, and has a synergistic effect when combined with other sweeteners. Acesulfame K is a nonnutritive sweetener that is 200 times sweeter than sucrose. Its sweet taste is rapidly perceptible; it has good shelf life and is relatively stable across normal temperature and pH ranges. It has some aftertaste. Other products being tested are thaumatin, stevioside, chloroderivatives of sucrose, dihydrochalcones, and the L-sugars. All are available in both liquid and crystalline form where they are approved for use. Saccharin is a .... sweetener.

****

noncaloric

18 BEVERAGES

Coffee is grown near the equator. There are about 50 varieties, which fall into three general classifications: Mild, Brazil, and Robusta. The yield varies but, on the average, one tree will produce 1 pound of coffee annually during its productive years. About 3500 beans are required to make up 1 pound of roasted coffee. The three general classifications of coffee are ...., ..., and ....

****
Mild • Brazil • Robusta

Commercial blends are made up of numerous varieties and species of coffee. It is the task of the expert blender to maintain a uniform blend flavor at all times, even though the varieties composing the blend may undergo constant change. Expert blenders maintain a .... blend flavor.

****
uniform

When the coffee fruit matures on the tree, it closely resembles a cherry. These cherries are hand picked as they ripen and then are processed for shipment. Each cherry contains two flat-faced beans (seeds) facing each other. The beans are protected by three external layers of skin, the silver skin on the inside, the parchment on the outside, and surrounding these two, the outer skin of the coffee cherry. Each coffee cherry contains two flat-faced ....

****
beans

Green coffee can be processed to remove the hulls by the wet or dry method. Later, the beans are run through sieving machines that sort them into different sizes. The beans are graded according to the number of imperfections. After grading, expert "cuppers" check the product to determine its flavor quality. They roast, grind, and prepare a sample and smell the aroma. After it has cooled somewhat, it is tasted. The coffee taster appraises the green coffee and then proceeds to build a blend that will meet the established standards of the company. Expert cuppers check the coffee to determine its .... quality.

****
flavor

Most roasters prefer to blend the green coffee before sending it to the roaster. When roasting time is completed, the process is stopped quickly, usually by means of a cold water spray, and then the beans are cooled to the desired temperature by forced air. The coffee is cleaned again and foreign materials removed. The roasted coffee is then ground to the desired fineness, measured by means of sieves. After grinding, the coffee goes to the packing area, where the selection of a container will depend on the time lapse before the consumer is expected to use it. The roasted coffee is .... to the desired fineness.

****
ground

Coffee begins to stale and loses its flavor, strength, and aroma as soon as it is roasted. The rate speeds up considerably after grinding. Ground coffee will stale twice as rapidly as bean coffee. Conditions of distribution and storage in the food service industry have led many suppliers to convert to gas-flushed packaging, with shelf life of 13 to 17 weeks, and foil packaging, with shelf life of 26 weeks. Heat and moisture cause coffee to stale rapidly. The special packaging can protect from moisture but not from heat. As soon as the coffee beans are roasted, they begin to lose their

.........................., ..., and

....

****
flavor • strength • aroma

For good results the grind designed for the brewing equipment must be used. Too fine a grind produces astringent, bitter coffee and too much sediment. Too coarse a grind results in a weak, flavorless beverage. The grind determines the length of time coffee and water should be together. Use the .... designed for the brewing equipment.

****
grind

Although sold by weight, coffee is measured by volume. Different coffees weigh different amounts; some differ by as much as 40%. A relatively lightweight, fluffy coffee, achieved by short roasting, will deliver more cups per pound than a heavier one. Weight differences alone can influence cost per cup. Lightweight coffee will deliver .... cups per pound than a heavier one.

****
more

Decaffeinated coffee is prepared by steaming and soaking the green coffee with a chlorinated organic solvent to remove most of the caffeine. It is then roasted and ground in the same way as regular coffee. .... coffee is prepared by steaming and soaking the green coffee with a chlorinated organic solvent.

****
decaffeinated

Instant coffee and freeze-dried instant coffee are prepared by freeze-drying and/or by various extraction, evaporation, and drying processes. Decaffeinated coffee may also be prepared by these same procedures.

.... coffee is prepared by extraction, evaporation, and drying.

****

instant

Coffee drinkers usually prefer the blends containing less Robusta coffee and having less cereal character. They also prefer regular over instant. In some parts of the country, people prefer coffee that is blended with chicory. People usually prefer coffee containing less .... coffee and having less .... character.

****

Robusta • *cereal*

Tea is the name of an evergreen shrub or small tree and the beverage brewed from its leaves. Tea is a favorite beverage that is consumed both hot and iced. Major types of tea are black, green, and oolong. Instant tea is also available and is usually made from black tea. Herb tea may be made by adding flavoring to black tea. .... is the name of a shrub or tree and the beverage brewed from its leaves.

****

tea

The chemical composition of the tea leaf is influenced by soil, genetic variation, climate, maturity of leaves, manufacturing processes, and storage conditions. Tea leaves contain a number of enzymes that cause them to ferment when crushed and exposed to air. In the preparation of black tea, the leaves are picked and allowed to dry in air for some time, after which they are rolled and crushed by hand or machine and spread out in air for a longer time than before, this time to ferment. When fermentation is completed, the leaves are rolled again, dried by heat until crisp, and graded. The grade of tea is related to the size of the leaf rather than quality; 98% of the leaf tea sold in the United States is black ....

.... is picked, dried, rolled, crushed, then fermented and rolled and dried again before it is graded.

****
black tea

Green tea differs from black tea by being steamed after picking to inhibit the action of the fermenting enzymes. The grades include the pan-fired and basket-fired green teas of Japan and hyson and gunpowder teas of China. .... differs from black tea by being steamed after picking to inhibit the action of the fermenting enzymes.

****
green tea

Oolong tea is partially fermented and then steamed and is therefore intermediate in characteristics between black and green tea. The best grade is Formosa oolong. .... is partially fermented and then steamed.

****
oolong tea

Tea is prepared for consumption by brewing. According to the package directions of most commercial products, tea should be prepared by pouring boiling water over tea leaves or a tea bag, then steeping from 3 to 5 minutes. However, conditions for tea brewing such as amount of leaves used, temperature of the water, and size of the teacup are subject to considerable variation. The amount of leaves packed in tea bags varies among different brands. Tea is prepared for consumption by ....

****
brewing

Instant tea, which is prepared by removing the moisture from brewed tea, makes up almost half the tea sales in the United States. It is available as

100% instant tea, sugar-free iced tea mix, lemon-flavor and sugar tea mix, lemon-flavor tea mix, and sweetened tea mix. These products are available in 2 and 3 ounce jars. .... makes up almost half the tea sales in the United States.

****
instant tea

Herb tea may be made from black tea to which spices and flavorings have been added during the processing operation. Cinnamon, lemon, orange, mint, almond, clove, apple, and rose hips are some of the many flavorings that may be added. They are available in individual tea bags and 1 pound containers. .... may be made from black tea to which spices and flavorings have been added during the processing operation.

****
herb tea

Fruit juices are available in a variety of forms. They may be fluid, frozen, or freeze-dried; single strength or concentrated; refrigerated or pasteurized to delay spoilage; and packaged in glass, cans, foil-lined paperboard, or vaporproof envelopes. Grade standards have been established for most fruit juices and these are similar to the standards used for fruits. Fruit .... are available in a variety of forms.

****
juices

Fruit beverages and fruit bases are made in part from fruit juices and pulp. Juice drinks contain little fruit or juice but derive most of their flavor from added acids, natural or synthetic flavoring materials, and other additives. Some drinks have no real fruit ingredients. The amount and quality of the fruit will be reflected in the price. Fruitades and imitation fruit juices are often enriched with vitamin C but do not contain the other nutrients found in real juices. Fruit .... and fruit bases are made in part from fruit juices and pulp.

****
beverages

Carbonated beverages are available in a variety of fruit flavors and cola. Some are caffeine-free and/or sugar-free. These drinks are sold at retail in cans and bottles. For quantity service they are available in 1 and 5 gallon containers for use in a postmix machine. .... are available in a variety of fruit flavors and cola.

****
carbonated beverages

19 RECEIVING AND STORAGE

The major objectives of receiving and storage are to obtain the quality and quantity of merchandise ordered at the quoted price, to maintain adequate stocks of merchandise on hand, and to avoid loss through theft and spoilage. The attainment of these objectives can best be achieved by following certain proved practical principles, methods, and procedures. The major objectives of receiving and storage are to obtain the .... and .... of merchandise ordered at the quoted ....

****
quantity • *quality* • *price*

The person responsible should know all aspects of the merchandise received. It should be checked for quality, quantity, specification, and price. All merchandise should be accompanied by an invoice, and that information should then be summarized on the purchase record. Constant follow-up and evaluation checks are necessary to ensure proper performance of the receiving procedure. Merchandise should be checked for quality, quantity, ..., and ....

****
specification • *price*

Management should impress all employees, especially those responsible for storage of food, with the fact that food merchandise is money. There are many ways food quality can deteriorate: delays between receipt and storage, lack of adequate ventilation, long storage times, and failure to segregate foods correctly. Spot checks of the food, storage methods, storage temperature, and sanitation of storage areas must be done regularly by a supervisory person. Food merchandise is ....

* *

money

Meat is a very perishable food. Its palatability and high nutritive value must be protected by refrigeration from the time of slaughter until it is eaten. All fresh, smoked, and cooked meats should be refrigerated. Fresh meats should be stored at 33 to 36°F (1 to 3°C) and a relative humidity of 80 to 90%. Smoked and cooked meats may be stored at slightly higher temperatures, but not above 40°F (5°C). As soon as meat is delivered, its outside wrapping should be loosened or replaced with waxed paper to prevent drying. Ground meat and meat cut in small pieces spoil most rapidly. To prevent deterioration, meat should be stored tightly covered. When it is necessary to hold ground meat for more than 24 hours, it should be frozen. All fresh, smoked, and cooked .... should be refrigerated.

* *

meats

Fresh fish and shell fish are perishable, so they must be kept iced or refrigerated from the time they are caught until time for use. For longer storage, seafood items should be kept solidly frozen. Store fresh fish tightly wrapped in moistureproof, vaporproof material or in airtight containers in the refrigerator. Use within two days. Store frozen fish immediately to prevent thawing and deterioration of quality. Hold at −10°F (−25°C) for not longer than six months. Prolonged storage adversely affects flavor, texture, and color of the product. Cooked fish that is stored in a covered container may be kept in the refrigerator up to three days. Live shellfish is shipped in ice and should be cooked immediately. The cooked meat should be refrigerated and used as soon as possible. Shuck oysters, clams, and scallops before freezing, allowing ½ inch airspace in the container. Crabs and lobsters should be cooked, chilled, and the meat removed from the shells before packaging and freezing. Use the frozen cooked meat within one month. Uncooked shrimp may be frozen in the shell or shelled. Use within three months. Fresh fish and shellfish are ...., so they must be kept iced or refrigerated.

****

perishable

Poultry, both cooked and raw, is very perishable. Unless properly cared for and refrigerated quickly, poultry will spoil readily. Birds should be drawn immediately, wrapped in waxed paper, and stored at 32 to 40°F (0 to 5°C) for not longer than 24 hours. Frozen poultry may be kept in the wrapper in which it is received. It may be stored for not more than three days at 32 to 40°F (0 to 5°C) or six to nine months at 0°F (−20°C) or below. Refrigerate all cooked poultry promptly and use within 24 hours. Cover it well to prevent drying and absorption of odors from other foods. Unless properly cared for and .... quickly, poultry will .... readily.

****

refrigerated • spoil

Fresh eggs are perishable and lose their quality rapidly if not properly cared for. They should be refrigerated immedately at 40 to 50°F (5 to 10°C). Eggs evaporate and absorb odors through the shell, so they should be kept covered and should not be stored near strong-flavored foods. Eggs lose their .... rapidly if not refrigerated immediately.

****

quality

Frozen eggs should be stored in their original container to prevent contamination. They should be held at 0°F (−20°C) or lower and should not be defrosted until ready for use. Dried eggs should be stored in airtight containers and refrigerated at 40 to 50°F (5 to 10°C). Frozen eggs should not be .... until ready for use.

****

defrosted

Milk and cream must be kept cold, covered, and clean. They must be refrigerated immediately and held at 35 to 40°F (2 to 5°C) until just before use. Ice cream and frozen desserts must be held at −10 to 0°F (−25 to −15°C). Milk and cream must be kept ...., ..., and ....

****

cold • covered • clean

Refrigerate natural cheese in the original wrapper. Cover cut surfaces tightly with foil or clear plastic wrap. Properly stored, natural cheeses will keep for several weeks. Store strong-flavored cheeses refrigerated in a tightly covered container. Refrigerate unripened cheeses immediately, as they are highly perishable; use soon after purchase. Freezing cheese is not generally recommended because of a slightly altered texture noted after defrosting. If done, package tightly in moistureproof, vaporproof freezer wrapping and freeze at 0°F (−20°C) or below. Thaw in the refrigerator and use as soon as possible. Frozen cheese will keep several months. Refrigerate natural cheese in the ....

****

original wrapper

The length of time fruits can be held in storage can be increased considerably by proper control of temperature, moisture, and conditions of respiration. Fruit should be carefully watched and any showing signs of spoilage should be removed. Fruit should not be refrigerated until ripened. Low temperatures retard enzyme action and help to hold fruit at the desired state of ripeness. When ripened bananas are held in low-temperature storage, the skin turns brown. Berries are among the most perishable fruits. They crush easily and should have a minimum of handling. For this reason they should be stored in the small boxes in which they are received. These containers are well ventilated and thereby help retard the growth of mold. The storage time of fruits can be increased by proper control of

.............................., ..., and conditions of respiration.

****

temperature • moisture

Fresh vegetables should be eaten as soon as possible after they are delivered. They should be examined carefully to see that they are not bruised or substandard. They should not be washed until time for preparation. Vegetables held for later use should be kept between 38 and 50°F (5 to 10°C) to prevent deterioration. Root vegetables and tubers being held for long periods must have both temperature and humidity controlled. When potatoes are stored at temperatures below 50°F (10°C), much of the starch is changed to sugar, making them unsatisfactory for use as potato chips and French-fried potatoes. The cooking quality is best when they are stored between 50 and 60°F (10 and 15°C). For long storage times, temperatures of 38 to 50°F (5 to 10°C) are recommended to prevent sprouting. The change from starch to sugar caused by storage at such low temperatures can be reversed by storing for a period of time above 50°F (10°C). The flavor of parsnips is improved by storage at a low temperature, which stimulates the change of the starch to sugar. Fresh vegetables should be .... as soon as possible after delivery.

****

eaten

The storage area for canned fruits and vegetables, soup, juice, cereal, and other staples requiring room temperature storage should be clean, dry, and well ventilated. Optimum temperature is 50 to 70°F (10 to 20°C). Temperatures above this reduce the shelf life of the food being stored. Most states require that food be stored above the floor on shelves or pallets to aid in cleaning, prevent water damage, and improve circulation of air. The storage area should be clean, dry, and ....

****

well ventilated

Spices should be kept in tightly closed containers since much of their aroma and flavor are lost on exposure to air. Herbs and ground spices have a shorter shelf life than whole spices. Deterioration is rapider at higher temperatures. Flavorings should be kept tightly sealed to prevent evaporation. Spices should be kept in tightly .... containers.

****

closed

Dietary costs are influenced by many persons and the performance of many activities from the time merchandise is purchased until it is eaten. The responsiblities of key personnel involved in these activities need to be clearly defined. The procedures for effectively carrying out and evaluating the performance of these duties must be developed. If the basic operating procedures are efficient, the proper foundation will be laid for effectively controlling costs at later stages of food processing. Dietary costs are influenced by many .... and the performance of many ....

****

persons • activities

The primary objective of food purchasing is to obtain the best quality of merchandise, based on established specifications, at the best possible price and to receive and store these products in an efficient manner. Knowledge of accounting procedures and product specifications will allow the purchaser to make the decisions necessary for a successful food service operation. The objectives of .... as covered in this book will aid the person in charge in making decisions necessary for a successful food service operation.

****

food purchasing

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Congratulations

in recognition of completion of

PURCHASING FOR FOOD SERVICE: SELF-INSTRUCTION

SUPERVISOR